Assessment of the Canadian and Alaskan Sockeye Stocks Harvested in the Northern Boundary Fisheries using Run Reconstruction Techniques, 1982-2001

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Technical Report No. 13

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ABSTRACT

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Detailed information on the catch, escapement, migration timing and behaviour of northern boundary sockeye salmon stocks has been obtained through national and international studies conducted over the past 20 years. The Northern Boundary Annex to the 1999 Canada/U.S. Salmon Treaty agreement requires detailed accounting of the harvests for Nass and Skeena sockeye stocks. The Northern Boundary Technical Committee was asked to provide the catch, escapement and total run size estimates for the regional sockeye stocks required to implement the new Treaty provisions. A review of the existing run reconstruction data and analyses was initiated in 2001, and lead to the preparation of a jointly approved series of run reconstructions for the 1982-2001 harvests. This report describes the revisions made to the catch and escapement data, migration parameters and assumptions used in the run reconstructions, and compares the revised results with those reported by Gazey and English (2000).

Two run reconstruction methods are used. The first assumes that the stock composition of the harvest in each fisheries is determined by the relative abundance of each stock in the fishery (i.e. the fish present in a fishery are equally vulnerable to the fishing gear). The second assumes that stock contributions to Alaskan catches are known from scale sample data analyses and relies upon the equal vulnerability assumption to estimate stock specific harvests for Canadian fisheries. Both methods use information on migration patterns that were stock-specific and fixed throughout each year, but variable across years. An initial set of migration route parameters for each stock was generated based on the 1982-83 north coast tagging studies results. Alternative sets of migration parameters were developed by adjusting the initial set of values until the estimated catches by stock and week in the Alaskan fisheries derived assuming equal vulnerability were similar to those derived using the scale stock composition estimates for these Alaskan fisheries. Five sets of migration parameter values were required to fit the 1982-2001 scale data, with one set providing the best fit for 14 of the 20 reconstruction years. The run reconstruction results derived using the second method were considered by the Canadian and Alaskan fisheries managers to be the most reasonable estimates of stock size and catch by stock for sockeye harvested in northern boundary fisheries. Consequently, the migration route parameters only affect the stock specific catch estimates for Canadian fisheries, with the vast majority of the Alaskan harvests by stock determined using the scale data or the definition of terminal fishing areas for Alaskan stocks.

The revised estimates for the Skeena stock for 1982-95 were all greater than the earlier estimates because of the combined effect of increasing the annual escapement estimates for the Skeena and decreasing the escapement estimates for Alaskan stocks. The increase in the escapement estimates for Nass sockeye resulted in higher stock size estimates for 1982-1990. The reductions in the estimates of the size of the Nass stock in 1991-1995 were the combined affect of changes to the migration routing parameters, harvest data and escapement estimates.

The 1999 Annex states that the Tree Point gillnet fishery may harvest, on average, 13.8% of the Annual Allowable Harvest (AAH) for Nass sockeye. This exploitation rate was based on earlier analyses of the 1985-1997 catch and escapement data, conducted during the negotiation of the annex. Despite the numerous and substantial changes to both BC and Alaskan catch and escapement data used in our analyses, we estimate that the 1985-1997 average exploitation rate for Nass sockeye in the Tree Point fishery was

13.9% (Table 14). Since 1997, exploitation rate for Nass sockeye in the Tree Point fishery has averaged 15.6% and ranged from harvested 20.3% in 1998 and 1999 to 10.9% in 2000.

The 1999 Annex also states that the Alaska District 104 fishery may harvest, on average, 2.45% of the combined Skeena-Nass AAH in fisheries prior to the end of July (Week 31). This percentage was based on an earlier analysis of 1985-1997 harvest of Skeena and Nass stocks in the District 104 fishery, where the percent Skeena-Nass in the District 104 fishery prior to Week 31 was applied to a fixed maximum harvest of 120,000 sockeye. We have repeated these analysis procedures using the results from the run reconstruction and derived an estimate of 2.34% for the 1985-1997 base period. The main reason for the difference between this value and that defined in the 1999 Annex is the increase in the escapement estimates for Skeena and Nass sockeye. The run reconstruction results indicate that the District 104 catch prior to Week 31 was, on average, 3.30% of the Skeena-Nass AAH during the 1985-1997 period and 2.25% of the Skeena-Nass AAH from 1999-2001. The later estimate indicates that recent harvests in District 104 have been, on average, less than the harvest share defined in the 1999 Annex and our estimate of 2.34% based on the revised catch and escapement data.

The run reconstructions reported here represent a systematic application of an analytical technique that allows the fisheries managers and analysts to combine all the available information for northern boundary fisheries into a single process to better understand the relative and potential contributions of majors stocks to each fishery. The process of organizing the data required for run reconstruction analyses reveals data gaps and assumptions critical to the interpretation of annual harvest statistics. The combined assessment of northern BC and Alaskan stocks by the Northern Boundary Technical Committee promotes an increased understanding of each others stocks and fisheries and an ongoing need to work cooperatively in the management and assessment of these valuable stocks.

1.0 INTRODUCTION

Detailed information on the catch, escapement, migration timing and behaviour of northern boundary sockeye salmon stocks has been obtained through national and international studies conducted over the past 20 years. In 1982-83, large-scale tagging studies were conducted to estimate the contribution of Canadian and Alaskan sockeye stocks to fisheries in the northern boundary area (Gazey 1983; Gazey et al. 1983; English et al. 1984; 1985; Pella et al. 1993). In most years since 1982, Alaska Department of Fish and Game (ADF&G) catch monitoring programs obtained scale samples to estimate the stock composition in the major southern southeast Alaskan sockeye fisheries (Oliver et al. 1984; Oliver and Farrington 1989). In 1993, the Department of Fisheries and Oceans (DFO) and the Nisga'a Tribal Council initiated a project to compile catch and escapement data, and combine these with information on migration routes and timing to reconstruct annual returns by stock. A report presenting preliminary results for 1982-92 was reviewed by the Pacific Region Stock Assessment Review Committee (PSARC) and circulated to Alaska fisheries managers in 1996. Minor revisions were made, data for three more years (1993-95) were added, and the results were used for the 1996-99 negotiation of the northern boundary annex to the Canada/U.S. Salmon Treaty (PSC 1999). A description of the data, analytical methods and reconstruction results for the 1982-95 sockeye and pink salmon returns was published in Gazey and English (2000).

The Northern Boundary Annex to the 1999 Canada/U.S. Salmon Treaty agreement requires detailed accounting of the harvests for Nass and Skeena sockeye stocks. It stipulates an annual harvest share of Nass River sockeye for the Alaskan Tree Point fishery, and harvest limitations for Nass and Skeena River sockeye stocks in the Alaska Noyes Island fishery. The Northern Boundary Technical Committee (NBTC) was asked to provide the catch, escapement and total run size estimates for the regional sockeye stocks required to implement the new Treaty provisions. A review of the existing run reconstruction data and analyses was initiated in 2001, and lead to the preparation of a jointly approved series of run reconstructions for the 1982-2001 harvests. This report describes the revisions made to the catch and escapement data, migration parameters and assumptions used in the run reconstructions, and compares the latest results with those reported by Gazey and English (2000).

2.0 DATA SOURCES AND PREPARATION

2.1 Stock and Fishery Definitions

The present stock and fishery definitions are similar to those of Gazey and English (2000), and are consistent with: (1) the stock and fishery management units defined by the DFO and ADF&G, (2) those used for the North Coast mark-recapture program (Gazey et al. 1983, English et al. 1984, 1985, and Pella et al. 1993); and (3) the management areas defined in the Canada/US Treaty and Nisga'a Final Agreement. The Canadian and Alaskan fisheries included in the run reconstructions are described in Tables 1 and 2. Gazey and English (2000) split Area 3 into sub-areas 3x, 3y+7 and 3z-7, but five sub-areas were used here, namely 3A, 3B, 3C, 3D and 3E (Figure 1, Appendix A). Some of the new sub-area boundaries match the earlier ones, with 3A and 3x remaining unchanged, 3B+3C being 3y+7, and 3D+3E being 3z-7. None of the Alaskan fisheries boundaries were changed, but sockeye catches in the Annette Island Tribal fisheries in Lower Clarence Strait and the Revilla area were added to the these fisheries.

The sockeye stock groupings defined for the northern boundary fisheries consist of the two largest stocks from northern BC (Nass, Skeena), one trans-boundary stock (Stikine), two Alaskan stocks (McDonald Lake, Alaskan Other) and Fraser River stocks from southern BC (Table 3). The data sources and procedures used to compile the associated catch and escapement estimates are described below.

2.2 Catch

For the present analysis, catch data for Canadian fisheries were processed in a slightly different manner than described in Gazey and English (2000). In both analyses, fisheries officer hail data were used to partition the catches from sale slip records into daily catches in Canadian gillnet and seine fisheries. Gazey and English (2000) used weekly catches by Statistical Area, but the present analysis uses annual catches by Statistical Area. DFO fisheries managers believed the new approach would provide a more accurate distribution of the catches within each Area, and the resulting daily catch estimates were slightly different than previous ones. As in the last analysis, Alaska catch data were organized by 1-7 d fishery openings (generally 2-3 d). Run reconstructions were conducted with daily time steps, so average daily harvest rates are applied to openings greater than 1 d.

2.2.1 Canadian Fisheries

Since the northern boundary run reconstructions began in the early 1990's, substantial efforts were made to organize and verify the Canadian fisheries catch data. Past efforts focused mostly on the collection, organization and verification of the fisheries officer hail data, with the post-1981 data now available in structured databases. These data include daily estimates of fishing effort and catch by salmon species, sub-area and gear type. Annual catch statistics by species, Statistical Area and gear type were obtained from the DFO Sale Slip Catch Database. For Statistical Areas 1, 3 and 4, annual catch statistics from Sale Slips were partitioned by day and sub-area using the hail data. Table 1 shows the link between the hail data sub-areas and the fisheries in the run reconstruction model. Area 5 was analyzed as a single fishery, so all hail data were pooled and used to partition the annual catch to specific days. For cases where no hail data are available (small fisheries early or late in the season), single day openings were assumed, and the entire catch was allocated to the first day of the catch week. These catch records can be identified in the database because the boat count estimates, derived from the hail data, are missing.

The lack of detailed hail data by sub-area within Area 3 and 4 in 1982-84 required additional analysis and assumptions to partition the weekly catches. For Area 3, the 1982-84 hail data do not specify if catches are above and below China Hat (new 3C-3D boundary). An analysis of the more detailed 1985-92 sockeye hail data revealed that: (1) most seine catches in the old area Area 3z occur in 3C (below China Hat); (2) most of the gillnet catch in Area 3z occurs in 3D+3E (above China Hat); and (3) seine catches above China Hat were similar to gillnet catches below China Hat. So for 1982-84, all Area 3z seine catches were assigned to 3C, all Area 3z gillnet catches were assigned to 3D.

For Area 4, the 1982-84 daily hail data do not specify catches by sub-area. However, aerial survey counts of fishing vessels by sub-area were available, and used to partition catch by sub-area. An analysis of the hail data for 1985-92 did not reveal consistent differences in the catch rates between sub-areas, so an equal catch rate across sub-areas was assumed, and weekly catches were partitioned using the distribution of fishing vessels determined from the aerial surveys.

The above assumptions were discussed with the North Coast fishery management biologists who agreed that the estimates of daily catches by sub-area and gear type used in these run reconstructions were the best that could be derived using the available data.

2.2.2 Alaskan Fisheries

For the earlier analyses of the 1982-95 Alaska harvest data, ADF&G staff provided data on Alaskan catches by landing date, sub-area, and gear type in separate files from their data on fishery openings. Gazey and English (2000) compiled these data into a database of catch by opening for each of the Alaskan fisheries. For the present analyses, ADF&G provided catch estimates by opening and sub-district, which were compiled by fisheries before conducting the analysis (Table 2). This process revealed that the earlier data sets provided by ADF&G had not consistently included the Tribal catches of the Annette Island fishery, and incidental catches in District 105.

2.3 Escapement

A list of the sockeye salmon stocks included in the model is provided in Table 3. Different methods were used to estimate the total and daily escapements by stock.

2.3.1 Northern B.C. Stocks

For Nass and Skeena sockeye stocks, test fishing indices were used to determine daily escapements. Total escapement estimates are combinations of all in-river catches and spawning populations. For Nass sockeye, the 1992-2001 figures were obtained from the Nisga'a Fishery Program reports. The 1982-91 catch and escapement data were obtained from DFO records, and adjusted using data collected through the Nisga'a Fisheries Program. Methods used to adjust the Nisga'a harvest estimates were described by Bocking et al. (1994). Historical escapements for the four major Nass watershed sockeye stocks were expanded to total estimates for the Nass, using the DFO counts and the 1992-2001 fishwheel mark-recapture estimates of escapements (Table 4). These adjustments resulted in a 7-13% increase in the annual escapement estimates for Nass sockeye over those presented in Gazey and English (2000). Daily escapement indices for Nass sockeye were obtained from the 1982-92 Monkley Dump gillnet test fishery (Southgate et al. 1990), and from the 1993-2001 Nisga'a fishwheel program (Link et al. 1996; 2001; Link and English 1996; 1997; Link and Gurak 1997; Link 1999; Alexander and Link 2001; Alexander 2001; Alexander and Bocking 2003). Data from years with complete coverage of the Nass sockeye run were used to produce daily escapement indices for periods after the termination of the annual fishwheel operations or gillnet test fishing.

For Skeena sockeye stocks, only DFO records were used to estimate in-river catches and escapements. Escapement estimates were larger than those used in earlier analyses because of recent adjustments for non-Babine stocks, and for periods when the Babine River counting fence was not operated (Table 5). The average annual expansion factor used to estimate non-Babine escapements was 3.61, which includes adjustments for the streams not surveyed, and biases in visual survey efficiencies determined during the 1999 tests (Steve Cox-Rogers, DFO Prince Rupert, pers. comm.). Daily escapement indices for Skeena sockeye were obtained from the Tyee gillnet test fishery (Cox-Rogers and Jantz 1993), and used to the estimate daily escapements above the Tyee test fishery (in-river catch plus spawners).

The annual escapement estimates and run timing for the Stikine River were obtained from the annual Pacific Salmon Commission (PSC) reports for the transboundary area (PSC Transboundary Technical Committee 2003). Escapement estimates were partitioned into daily estimates using a triangular distribution defined by the start, peak and end dates for the sockeye entering the Stikine River each year.

2.3.2 Southern B.C. Sockeye Stocks

Scale data analyses have indicated that Fraser River sockeye are occasionally caught in northern boundary fisheries (Area 1 net, Area 1 troll south, Noyes and Dall). The run sizes for Fraser River stocks escaping these fisheries is unknown, so their reconstruction was not possible. However, the PSC compiles estimates of Fraser River stock catches in northern boundary fisheries (PSC 1994, Gable and Cox-Rogers 1993). These data were deducted from the northern boundary fishery catches before reconstructing the runs of northern boundary stocks. When multiple openings occurred within a week, the estimated Fraser River sockeye catch was adjusted using total catch (all stocks) for each opening. Similarly, the total catch of Fraser River sockeye for District 104 during 1982-88 was allocated to the Dall and Noyes fisheries in proportion to the total catch in each fishery by week. Estimates of Fraser River sockeye caught in the Dall and Noyes fisheries were available for 1989-2001.

2.3.3 Alaskan Stocks

In Gazey and English (2000), the total annual escapement estimates for Alaskan sockeye stocks were obtained from ADF&G records (Ben Van Alen, ADF&G Juneau, pers. comm.). Estimates for the McDonald and Hugh Smith sockeye stocks were derived from the weir counts, and those of other southern southeast stocks were obtained by accounting for the contribution of the total weir counts to the total estimated sockeye escapements in 1982-83 (periods of intensive sockeye escapement monitoring in Districts 101-108).

For the analyses presented in this report, ADF&G proposed that the escapement estimates for Alaska sockeye stocks be replaced with values derived by assuming a 50% exploitation rate for Alaska stocks in Alaska fisheries. Therefore, the Alaska scale stock composition data were combined with the harvest data to estimate the total catch of Alaska sockeye in Alaska fisheries and the annual escapement for all Alaska stocks combined was set equal to the total catch estimate (i.e. 50% exploitation rate). The total escapement was separated into two stocks by subtracting the annual McDonald Lake escapement estimates from the annual total escapement estimate. The escapement estimates for McDonald Lake sockeye were derived from a series of seven foot surveys conducted annually, except for 1983 and 1984 when the estimates were derived from weir count data. Since most of the historical escapement estimates for McDonald Lake were revised after 1995, the changes to the Alaska sockeye escapement estimates were substantial. The escapement timing for Alaska sockeye also changed. Alaska Department of Fish & Game fishery managers reviewed the weekly harvest data for Alaska sockeye stocks in each management district and defined the start, peak and ending dates for the McDonald Lake and other Alaskan stocks. These dates are used to define the triangular escapement distributions used to convert annual escapement estimates into daily escapement estimates for each stock.

2.4 Migration Routes

A migration route is defined as the sequence of fisheries traversed by a particular sockeye stock. The routes were inferred from: (1) discussions with DFO and ADF&G staff, and (2) the 1982-85 North Coast Salmon Tagging Studies results (Gazey et al. 1983, English et al. 1984, 1985, Taylor et al. 1986). The earlier run reconstruction results were derived using two sets of migration parameters: 1) those which applied to the 1982 catch and escapement data, produced interception estimates consistent with the stock composition estimates from the 1982 North Coast Tagging program results; and 2) those which applied to the 1983 catch and escapement data, produced estimates consistent with those of the 1983 program results. These are referred to as the 1982 and 1982 migration route parameters.

This initial set of migration route parameters was used as the starting point for the analyses presented in this report. The alternative sets of migration route parameters used for the various reconstruction years were produced as follows:

1. run reconstructions for a specific year were completed based on the initial set of migration route parameters for 1982-83;
2. catch estimates for each stock in the Alaskan fisheries from the "equal vulnerability" run reconstructions were compared with those based on stock composition estimates derived from the Alaskan scale samples analysis;
3. differences in catches by fishery between the "equal vulnerability" and "scale data" reconstructions was expressed as a sum of squares;
4. the migration route parameters that produced the smallest sum of squares were used as the starting point for further fishery by fishery comparisons;
5. the Tree Point fishery was the first fishery examined because of its proximity to key Canadian fisheries, and its consistent interception of Nass and Skeena sockeye;
6. if the weekly stock-specific catch estimates from the "equal vulnerability" reconstructions differed from those based on scale data, the migration parameters were adjusted by trial and error until the differences were as small as could be practically achieved for that year;
7. step 6 was repeated for each of the major Alaskan fisheries in the sequence: Lower Clarence, Revilla, Noyes Island, Dall Island and Sumner;
8. each alternative migration route was checked for the impact on the previous fisheries examined to ensure that it did not lead to substantially greater discrepancies between their corresponding catch estimates;
9. once a set of migration route parameters produced an adequate fit to the scale data, it was labelled and added to the list of alternative sets of parameters to be examined for any reconstruction year; and
10. this process is then repeated for the next run reconstruction year.

It should be noted that our final analysis results for each year are those derived using all the available stock composition estimates for the Alaskan fisheries. Therefore, the estimates of the number of Nass, Skeena and Alaska sockeye caught in scale sampled Alaskan fisheries are identical to those derived from the direct combination of scale and catch data. The new estimates obtained from the run reconstruction analysis are the number of Nass, Skeena and Alaskan sockeye caught in Canadian fisheries and those Alaskan fisheries without scale stock composition estimates. Since stock composition estimates are available for the vast majority of the harvest in southern southeast Alaska fisheries, the impact of alternative routing parameters is essentially limited to the stock-specific catch estimates for Canadian fisheries.

Migration route parameters and diagrams are provided for each sockeye stock in Appendix B and C to this report.

2.5 Residency Time

Residency time is defined as the number of days (to the nearest day) a stock resides within the boundaries of a single fishery (Appendix B). As in English et al. (1985), travel times across boundaries of adjacent fisheries was assumed to be <1 d.

2.6 Stock Composition in Alaskan Areas from Scales

Scale pattern analysis results were used to estimate stock composition for sockeye catches in major Alaskan fisheries (Oliver et al., 1984) since 1982. A maximum of six stock groupings were used to partition the catch by week: (1) Southeast Alaska; (2) Nass River; (3) Skeena River; (4) Stikine River; (5) Tahltan River; and (6) south coast stocks (assumed to be mostly the Fraser River). In many years and areas, the catch has been partitioned into only two stocks: 1) Alaska and 2) Nass and Skeena combined. In addition, the weekly stocks composition estimates are only available by major fisheries (defined by district and gear type). Separate estimates are available for most weeks for southern southeast Alaska's four district purse seine fisheries (District 101, 102, 103 and 104); and two major gillnet fisheries: District 101 (Cape Fox) and District 106 (Sumner and Upper Clarence Strait). Stock composition estimates are not available by sub-district area and, typically, scale data is limited for weeks at the start and end of the sockeye fishing season when catches are small.

The use of the above stock composition estimates is optional for the northern boundary run reconstructions. If this option is selected, the stock composition estimates available for each Alaskan fishery are used at their defined level of resolution (stock group by week by fishery) and the equal vulnerability assumption is used for all fisheries without scale stock composition estimates and where the stock composition estimate do not separate Nass and Skeena stocks. In these latter cases, the stock composition data would be used to estimate the total catch of Nass and Skeena sockeye combined and the relative abundance of these two stocks would be used to estimate the catch for each stock in that fishery during the defined fishing period.

3.0 ANALYTICAL METHODS

The theoretical basis for the run reconstructions was described in part by Starr and Hilborn (1988), Gazey et al. (1989), Gazey (1992), and Cave and Gazey (1994). However, the procedure used here is particular in that; 1) stocks cannot move in and out of fishing areas in a day; 2) catch by major stock groups (from scale stock composition estimate) are used for areas and weeks; 3) catches pooled over time (up to 7 d) can be used; and 4) stocks can migrate simultaneously in opposite directions. Gazey and English (2000) provided the first complete documentation of the algorithms used to do the reconstructions for the present report.

4.0 RESULTS

4.1 Sockeye Catch and Escapement Estimates

The importance of each sockeye fishery and stock to the reconstruction results is largely a function of the corresponding catch and escapement estimates (Table 6). Sockeye catch is distributed over 24 fisheries with the 4 major ones (Area 3, Area 4, Noyes, Dall) accounting for >76% of the harvest. Discrepancies between the Table 6 figures and those reported by Gazey and English (2000) are given in Table 7, and are largely caused by changes to the input data. Those concerning the Area 1 troll fishery (1TS) in 1993-95 are due to the addition of data missing from the previous analysis. The largest change for Canadian fisheries is for Area 3 in 1993, because hail data used to allocate the harvest in that area were not previously available. For Alaska, increases in the Lower Clarence and Revilla harvests are caused by the addition of Tribal harvests in the Annette Island fisheries; and catches in District 105 to the run reconstruction database.

Total escapements estimates changed more substantially than catches. Escapement estimates for both Alaskan stocks were substantially lower than those used in previous reconstructions. Estimates for McDonald Lake were lower than reported earlier for all years except 1987, and are due to errors in the older data input files. Large differences for the other Alaskan stocks (US Other) were caused by using a modified escapement estimation procedure (equating escapement and total catch of Alaskan stocks in Alaskan fisheries), and alternative escapement estimates for McDonald Lake (US Other = total minus McDonald). As a result, the most recent escapement estimates for Other and McDonald declined by 35% and 16%, respectively. By contrast, escapement estimates for Skeena and Nass stocks increased by 8% and 7%, respectively. Corrections made to the escapements of non-Babine stocks and the incomplete Babine fence counts lead to higher estimates of Skeena escapement for each year, with increases in the 34,000-173,000 range. Corrections made to the Nass sockeye escapement estimates to account for non-Meziadin stocks prior to 1992 lead the 1982-91 estimates to increase by 23,000-50,000. Systematically accounting for year-to-year changes in the coverage of the sockeye run only lead to minor changes to the 1992-95 Nass escapement estimates. There were no changes to the escapement estimates for Stikine sockeye.

4.2 Migratory Parameters

Five different sets of migration parameters (Routings A-E) were used to define sockeye migration patterns that were consistent with the stock composition data available for the 1982-2001 fishing seasons. These migration parameters, provided in Appendix B, define the portion of each stock that would migrate through each fishery (Table 8). Some of the migration parameters are similar across all routings. For example, 85% of the Skeena stock migrate through the Area 4W fishery and 100% of the Skeena stock migrate through the 4X, 4Y, and 4Z terminal fisheries. In contrast, the portion of the Skeena stock migrating through the Tree Point fishery varies from 7.1% under Routing B to 0.5% under Routing E.

One of the parameter sets (Routing A) was used for 14 of the 20 years reconstructed. Routing A was originally based on the 1983 migration parameters defined to produce seasonal stock composition estimates that were within three percentage points of the 1983 International tagging study estimates for each fishery-stock combination (Gazey and English 2000). The results of detailed comparisons of weekly stock composition data for 1983 and other years were used to further refine the 1983 parameters into the Routing A parameters. These refinements included routing more Skeena sockeye through the outside portions of

Area 3 and 4, reducing the portion of the Skeena stock that migrates through the Tree Point and lower Clarence fisheries, and ensuring that the same portions of each stock migrate through both the Dall and Noyes Island fisheries (Table 8). The later change was necessary because the 1983 routing parameters were defined to reflect the tagging study stock compositions which were different for the Dall and Noyes Island fisheries in 1983. In all other years, the stock composition estimates derived from scale data are the same for both of these fisheries (i.e. District 104), so the portion of each stock routed through the District 104 fishery must be equal for the Noyes and Dall Island fisheries.

Each of the other four sets of migration parameters was developed by making minor adjustments to the Routing A parameters to accommodate observed changes in stock composition estimates for key fisheries in specific years. Routing B was defined for 1991 when Skeena sockeye comprised a larger portion of the Tree Point fishery than in any other year. A substantial increase in the portion of the Skeena stock routed through 3B and on to Tree Point (from 1.3% to 7.1%) and the portion of the Nass stock routed through the Tree Point fishery was increased from 21% to 30% to replicate the stock proportions estimated from the Tree Point scale data (Table 8).

Routing C was used for the 1989 and 1990 fishing seasons when Alaskan scale data suggested that the abundance of Nass and Skeena stocks in Alaskan fisheries was higher than could be accounted for by changes in run size alone. Routing C was based on Routing A with more Nass fish routed through all Alaskan fisheries, more Skeena fish in the lower Clarence, Noyes and Dall Island fisheries, and less Alaskan stocks in the Noyes and Dall Island fisheries.

The Routing D parameters, used for 1998 reconstruction, are a composite of Routing A and C parameters for the Nass and Skeena stocks. The Skeena routing is similar to that in Routing C with slight increase in the portion passing through Tree Point and lower Clarence fisheries. Most of the migration parameters for Nass sockeye are identical to those for Routing A but two important changes to parameters for the 3B fishery results in a substantial increase in the portion of the Nass stock routed through the Tree Point fishery and a major reduction in the Nass fish passing through the Area 4 and 5 fisheries.

Routing E represents a slight modification to Routing A to reduced contribution of Nass and Skeena stocks to the Tree Point and lower Clarence fisheries. Therefore, this routing has the smallest portion of the Nass and Skeena stocks in the inside Alaskan fisheries while the portion of Alaskan stocks migrating through these fisheries is similar across all sets of routing parameters. The Routing E parameters were initially defined for the 2001 run reconstruction and later found to be an improvement over the Routing D parameters that previously provided the most consistent fit to the Alaska scale data for the 1999 reconstruction.

4.3 Reconstruction Results

The comparison of the weekly catch by stock estimates derived from the "equal vulnerability" analysis with those derived using the Alaska scale data was the primary method used to refine the migration parameters and evaluate the run reconstruction results for each year. The summary graphs for the Tree Point fishery were a key diagnostic for each reconstruction (Figures 2 to 5). These graphs quickly revealed any substantive differences between the run reconstruction approaches and the degree to which these differences could be reduced by altering the migration parameters for specific stocks. For example: if the "equal vulnerability" approach produced consistently lower catch estimates for the Skeena stock than those derived using the scale data, the portion of the Skeena stock routed through the Tree Point fishery would be increased. In most years, Nass sockeye are the dominant stock intercepted in the Tree Point fishery

(e.g.1986, 1992-99, 2001), however, in some years, like 1991, the scale data suggest that a substantial portion of the Tree Point catch was Skeena sockeye (Figure 3). While the change in the relative size of the Nass and Skeena stock accounted for some of this difference, adjustments to the migration routing parameters for Skeena sockeye were required to get a better match between the scale and "equal vulnerability" results. The degree of agreement between the reconstructions is generally very good, however, there were a few periods where no adjustments to migration parameters could account for the large week to week variation in stock proportions derived from the scale data. The largest discrepancy between the two reconstruction approaches occurred in week 32 of the 2000 run reconstructions (Figure 5). The scale data for the Tree Point fishery indicated that the week 32 stock proportions were 79% Skeena, 12% Nass and 9% Alaska. The Nass and Skeena proportions were was substantially different from those in the adjacent weeks (27-38% Nass and 24-53% Skeena). This anomaly in the scale data coupled with a coincident peak in the abundance of Nass sockeye in week 32 resulted in the substantial difference between the sets of reconstruction results. Further checking of the scale data did not reveal any deficiencies in sample sizes or inconsistencies in the age structure that could explain the anomalous stock composition estimate for week 32. We must therefore conclude that: Skeena sockeye were more vulnerable to the Tree Point fishery in week 32 than in other weeks; or the scale samples obtained from the week 32 Tree Point fishery were not representative of the entire fishery. Final estimates of the stock-specific catches by fishery and escapement by stock for 1982-2001 are given in Appendix D.

4.4 Annual estimates of stock size and exploitation rates

For most years, the two reconstruction approaches produced similar estimates of total stock size for each of the three major stock groups (i.e Skeena, Nass and Alaska). Skeena stock sizes ranged from a low of 930,000 in 1999 to over 7 million in 1996 (Table 9). The stock sizes for Nass sockeye ranged from 347,000 in 1988 to over 2 million in 1993. The total for all southern southeast Alaska sockeye stocks ranged from 469,000 in 1988 to 1.5 million in 1993. Over the 20 years examined, the difference between the stock size estimates derived from equal vulnerability approach and those derived using the scale data for Alaska fisheries ranged from -1% to 4% for Skeena stocks (Table 10). For 16 (80%) of the years, stock size estimates for the Nass differed by less than $\pm$10%. Alaska stock size estimates differed by less than $\pm$10% in 14 (70%) of the years examined. In all the years where the differences were greater than 10%, the estimates derived from the equal vulnerability approach were less than those derived using the scale data. The years with the largest differences for Nass and Alaskan stocks were years when Skeena stocks were abundant (e.g. 1988, 1996, 2000). In these years, the equal vulnerability approach has assigned more of the Alaska catch to the abundant Skeena stock than that indicated by the scale data.

The exploitation rates were similar for each run reconstruction approach. Reconstructions based on scale data indicate that, mean annual harvest rates for Skeena, Nass and US McDonald range from 49 to 65% (Table 9). The annual harvest rates for US Other (mean 45.3%) were generally lower than those for the Skeena, Nass and US McDonald stocks. The harvest rate estimates for Stikine stocks (mean 28.6%) were consistently lower than those estimated for all other stocks.

4.5 Contribution of Alaskan stocks to fisheries

As in Gazey and English (2000), we have examined the contribution of Alaskan sockeye salmon in northern boundary fisheries (Table 11). The contribution of Alaskan stocks to Canadian net fisheries has been consistently small (rarely greater than 7%). Contributions of Alaskan stocks to Alaskan fisheries were

higher and more variable: 10-45% for the Noyes and Dall Island fisheries; 31-88% in the Sumner Straits fishery; 27-79% in Lower Clarence; and 8-39% at Tree Point.

4.6 Comparison with previous run reconstruction estimates

The stock size and harvest rate estimates reported in Gazey and English (2000) were compared with those provided in this report (Table 12, Appendix D). The revised estimates for the Skeena stock for 1982-95 were all greater than the earlier estimates because of the combined effect of increasing the annual escapement estimates for the Skeena and decreasing the escapement estimates for Alaskan stocks. The increase in the escapement estimates for Nass sockeye resulted in higher stock size estimates for 1982-1990. The reductions in the estimates of the size of the Nass stock in 1991-1995 were the combined affect of changes to the migration routing parameters, harvest data and escapement estimates. The largest difference for Nass sockeye occurred in 1993 due to a major reallocation of catch from inside Area 3 fisheries to outside Area 3 fisheries (see Table 7). The increases in the Stikine stock size estimates derived using the equal vulnerability approach were primarily due to the reduction in the escapement estimates for Alaskan stocks. The changes for the two Alaskan sockeye stocks were similar under the two reconstruction approaches because the scale data do not separate these stocks so both approaches must rely upon the escapement data and equal vulnerability assumptions to estimate the catch for these stocks. In most years, the changes to the US McDonald escapement estimates were less than those for the US Other stocks so more of the Alaska catch was assigned to the US McDonald stock. The changes in exploitation rates are consistent with the above explanations, with lower exploitation rates for Skeena and Nass stocks and higher rates for the other stocks.

5.0 DISCUSSION

The run reconstruction methods outlined in Gazey and English (2000) and this report have been incorporated into the annual assessments for northern boundary sockeye salmon fisheries. The run reconstruction results outlined in this report provide fisheries managers with consistent and objective estimates of run size, run timing and fisheries specific stock compositions using all the available catch, escapement and stock composition data for 1982-2001. Each year's run reconstruction results were reviewed by Canadian and Alaskan fisheries managers and alternative assumptions tested as a component of the post-season stock assessment process. This process has helped to build the understanding and information base required to evaluate long-term fisheries management performance against the abundance based harvest limits defined in the 1999 Annex to the Canada-US Pacific Salmon Treaty.

The information required for a rigorous run reconstruction analysis encourages the managers and stock assessment biologist to test their understanding and assumptions regarding the stocks and fisheries in question. Existing databases seldom have data of sufficient spatial and temporal resolution for the analysis for daily fishing dynamics on rapidly moving stocks. The types of analysis required to convert the available catch and escapement data into a form suitable for daily run reconstructions provide insight into the strengths and weakness of the fundamental information required to manage salmon fisheries. In the above analysis, this process lead to the redefinition of fisheries, the identification and correction of errors in Canadian hail and sale slip databases, the reanalysis of escapement estimates for major Canadian and Alaskan stocks and the identification of stock-specific migration routes. The integration of independent stock composition data into the run reconstructions for sockeye has made it much easier to compare results from the two reconstruction approaches. These analyses and comparisons have helped identify data deficiencies associated

with earlier run reconstructions (Gazey and English, 2000) and make the necessary corrections. While most of the critical analyses and corrections have been completed, it is important to note that these are ongoing tasks that are an integral part of the run reconstruction process and results may change as the process and understanding evolves.

The 1982-2001 run reconstructions provided in this report are the product of over 10 years of data processing, analyses and consultations with fishery managers. These analyses have been endorsed by DFO and AGF&G representatives as the best available estimates of the stock-specific harvests for each of the sockeye fisheries in the Northern Boundary Area (Appendices E and F). The results for the Skeena and Nass sockeye stocks (Tables 13 and 14) provide all the information required to assess fisheries management performance against the goals defined in the 1999 Annex to the Canada-US Pacific Salmon Treaty (PSC 2000). The 1999 Annex states that the Tree Point gillnet fishery may harvest, on average, 13.8% of the Annual Allowable Harvest (AAH) for Nass sockeye. This exploitation rate was based on earlier analyses of the 1985-1997 catch and escapement data, conducted during the negotiation of the annex. Despite the numerous and substantial changes to both BC and Alaskan catch and escapement data used in our analyses, our estimate that the 1985-1997 average exploitation rate for Nass sockeye in the Tree Point fishery was 13.9% (Table 14). Since 1997, exploitation rate for Nass sockeye in the Tree Point fishery has averaged 15.6% and ranged from 20.3% in 1998 and 1999 to 10.9% in 2000.

The 1999 Annex also states that the Alaska District 104 fishery may harvest, on average 2.45% of the combined Skeena-Nass AAH in fisheries prior to the end of July (Week 31). This percentage was based on an earlier analysis of 1985-1997 harvest of Skeena and Nass stocks in the District 104 fishery, where the percent Skeena-Nass in the District 104 fishery prior to Week 31 was applied to a fixed maximum harvest of 120,000 sockeye. The resulting catch estimates were divided by the AAH for Skeena and Nass stocks combined to calculate the percent of the AAH. We have repeated these analysis procedures using the results from the run reconstruction and derived an estimate of 2.34% for the 1985-1997 base period (Table 15). The main reason for the difference between this value and that defined in the 1999 Annex is the increase in the escapement estimates for Skeena and Nass sockeye. The run reconstruction results provide estimates of the total catch, escapement and AAH for all Skeena and Nass stocks combined along with the District 104 catch prior to Week 31 (Table 15). Analyses of these data indicated that the District 104 catch prior to Week 31 was, on average, 3.30% of the Skeena-Nass AAH during the 1985-1997 period and 2.25% of the Skeena-Nass AAH from 1999-2001. The later estimate indicates that recent harvests in District 104 have been, on average, less than the harvest share defined in the 1999 Annex and our estimate of 2.34% based on the revised catch and escapement data. The annual exploitation rates for Skeena and Nass stocks in the District 104 fishery prior to Week 31 have been highly variable, ranging from 12.52% in 1997 to 0.39% in 1999.

For both of the above harvest shares, the AAH is equal to the total catch in those years where the net escapement is less than the escapement goals of 1,100,000 for Skeena-Nass stocks combined or 200,000 for Nass stocks alone. In those years where the net escapement is greater than the escapement goal, the AAH is equal to the total run less the escapement goal.

The run reconstructions reported here represent a systematic application of an analytical technique that allows the fisheries managers and analysts to combine all the available information for northern boundary fisheries into a single process to better understand the relative and potential contributions of majors stocks to each fishery. Since managers must make some assumptions regarding the stocks present in each fishery before permitting fisheries to take place, these types of models provide a means of documenting and systematically evaluating these assumptions. They also provide a consistent procedure for post season analyses and catch accounting that is necessary for examining stock trends, alternative management options and assessing management performance with respect to catch allocation goals.

While the uncertainty associated with the above run reconstructions must be acknowledged, so must the potential benefits of the further development and application of run reconstruction techniques. The inputs to the model specify clear requirements for data collection and organization which alone would be of significant benefit to fisheries managers. The process of organizing the data required for run reconstruction analyses reveals data gaps and assumptions critical to the interpretation of annual harvest statistics. The combined assessment of northern BC and Alaskan stocks by the Northern Boundary Technical Committee promotes an increased understanding of each others stocks and fisheries and an ongoing need to work cooperatively in the management and assessment of these valuable stocks.

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TABLES

Table 1. Definition of Canadian Fisheries based on hail survey data.

No.	Fishery	Definition	1982-1983	1984	1985	1986-2001
1	Langara	Area 1 Net	1-2, 1-3, 1-4	1-2, 1-3, 1-4	1-2, 1-3, 1-4	1-2, 1-3, 1-4
2	1TN	Area 1 Troll North	101-4	101-4	101-4 (< July 22)	101-4 (< July 22)
3	1TS	Area 1 Troll South	101-other	101-other	101-other	101-other
4	Masset	Masset Inlet	1-6	1-6	1-6	1-6
5	3A	Dundas West	3X	3X	3-1	3-1W
6	3B	Entrance	3Y	3Y	3Y	3-1E, 3-3-1, 3-3-2, 3-4
7	3C	Outside Portland	3Z(seine)	3Z(seine)	3-7(seine)	3-6, 3-7-2
8	3D	Inside Portland	3Z(gillnet)	3Z(gillnet)	3-7(gillnet), 3-9	3-7-1, 3-9, 3-11
9	3E	Nass Terminal			3-11 to 3-17	3-11 to 3-17
10	4W	Outside Area 4	15-20	4,5,6	4,5,6	4,5,6
11	4X	Lower Chatham Sound	14	3	3	3
12	4Y	Smith		2	2	2
13	4Z	River/Gap/Slough	11-13	1	1	1
14	Area 5	Area 5 Net	5-all	5-all	5-all	5-all

Area 1 Fishery Codes

1-2	Langara Island
1-3	Virago Sound
1-4	Naden Harbour
1-6	Masset Inlet
101-4	A-B line Troll
101-other	Dixon Enterance Troll

Area 3 Fishery Codes

3X	Dundas Island
3Y	Tracy Bay - Boston Rocks
3Z	Portland Inlet
3-1W	Dundas Island West
3-1E	Dundas Island East
3-3-1	Boston Rocks
3-3-2	Tracy Bay
3-4	Finlayson Island
3-7-1	Area 3-7 above China Hat
3-7-2	Area 3-7 below China Hat
3-9	Nasoga Gulf
3-11	Pearse Island
3-12	Kincolith
3-14	Observatory Inlet
3-17	Dogfish Bay

Area 4 Fishery Codes (1982-1983)

		Sub-stat Areas
11	Slough	4-15
12	River	4-15
13	Gap	4-15
14	Lower Chatham Sound	4-9, 4-12
15	Upper Chatham Sound	4-13
16	North Boundary	4-5, 4-6, 4-7, 4-8, 4-14
17	Hudson Bay Pass	4-1
18	Outer Stephens	4-2
19	Edye Pass	4-4
20	Oval Bay	4-3

Area 4 Fishery Codes (1984-2001)

1	River/Gap/Slough	4-15
2	Smith	4-12
3	North Porcher	4-9
4	North Boundary	4-5, 4-6, 4-7, 4-8, 4-14
5	Hudson Bay Pass	4-1
6	Outside Areas	4-2, 4-3, 4-4

Table 2. Definition of Alaskan fisheries.

No.	Fishery	Definition	Alaska Sub-Districts
20	Noyes	Noyes Island	104-30, 104-35, 104-40, 104-50
21	Dall	Dall Island	104-10, 104-20
22	Cordova	Cordova Bay	103-11, 103-15, 103-21, 103-23, 103-25, 103-30, 103-40
23	Sumner	Sumner Strait	106-41,106-42
24	U.Clar	Upper Clarence Strait	106-10, 106-20, 106-22, 106-30
25	M. Clar	Middle Clarence Strait	102-70, 102-80
26	L. Clar	Lower Clarence Strait	101-21, 101-25, 101-26, 101-27, 101-28, 101-29, 102-10, 102-20, 102-40, 102-50, 102-60
27	Revilla	Revilla	101-23, 101-24, 101-30, 101-33, 101-41, 101-42 101-43, 101-44, 101-45, 101-46, 101-47, 101-53
28	Union	Union Bay	107-10, 107-20
29	Tree	Tree Point (Cape Fox)	101-11
30	Term101	Terminal District 101	101-80,101-85, 101-90, 101-95
31	Term103	Terminal District 103	103-50, 103-60, 103-65, 103-70, 103-80, 103-90
32	Dist. 105	District 105	105-10, 105-20, 105-31, 105-41, 105-42, 105-43, 105-50
33	Term108	Terminal District 108	108-10, 108-20, 108-30, 108-40, 108-45, 108-50, 108-60

Table 3. Definition of sockeye stocks as used in the run reconstructions.

No.	Stock	Definition	Location
Sockeye Stocks			
1	Skeena	Skeena River	Statistical Area 4-15
2	Nass	Nass River	Statistical Area 3-18
3	Stikine	Stikine River	District 108-40
4	US McD	McDonald Lake	District 101-80
5	US Other	Alaskan Other	Districts 101, 102, 103, 105, 107
6	Fraser	Fraser River	Statistical Area 29

Table 4. In-river catch and escapement estimates used to compute the total sockeye escapements to the Nass River, 1982-2001.

Year	Escape to Nass River	Nisga'a Fishery FSC	Nisga'a Fishery Sale	Nisga'a Fishery Total	Gitanyow 16.2%	In-River Harvest	Adj. Net Escapement	Gitanyow %of Nisga'a	DFO Escapement	Escape above GW	Nisga'a Catch Above GW	Source
1982	372,881	19,681		19,681	3192	22872	350,009	16.2%	320,439			DFO
1983	234,871	21,890		21,890	3550	25439	209,431	16.2%	185,109			DFO, Bocking et al. (1993)
1984	243,053	35,349		35,349	5732	41081	201,972	16.2%	185,605			DFO, Bocking et al. (1993)
1985	448,420	35,601		35,601	5773	41374	407,046	16.2%	362,541			DFO, Bocking et al. (1993)
1986	259,300	39,241		39,241	6363	45604	213,696	16.2%	197,010			DFO, Bocking et al. (1993)
1987	250,816	34,981		34,981	5673	40653	210,162	16.2%	184,225			DFO, Bocking et al. (1993)
1988	190,023	29,453		29,453	4776	34229	155,794	16.2%	133,810			DFO, Bocking et al. (1993)
1989	158,920	27,107		27,107	4396	31502	127,417	16.2%	111,499			DFO, Bocking et al. (1993)
1990	205,319	23,970		23,970	3887	27857	177,462	16.2%	154,578			DFO, Bocking et al. (1993)
1991	381,589	62,704		62,704	10168	72872	308,717	16.2%	282,727			DFO, Bocking et al. (1993)
1992	731,534	50,506		50,506	8190	58696	672,838	16.2%		704801	23773	Link et al. (1993), English & Bocking (1993)
1993	573,694	30,490		30,490	4944	35434	538,260	16.2%		555776	12572	Link & English (1996), Bocking & English (1996)
1994	344,368	29,325		29,325	5000	34325	310,043	17.1%		325043	10000	Link & English (1997)
1995	303,739	34,054		34,054	5000	39054	264,685	14.7%		281616	11931	Link & Gurak (1997)
1996	252,336	29,220		29,220	5000	34220	218,116	17.1%		232270	9153	Link (1999)
1997	287,242	31,640		31,640	5146	36786	250,456	16.3%		266804	11202	Link, Alexander & Blakley (2001)
1998	304,888	32,149		32,149	6281	38430	266,458	19.5%		281928	9189	Alexander & Link (2001)
1999	256,022	33,838		33,838	11227	45065	210,957	33.2%		239346	17162	Alexander (2001)
2000	300,468	22,448	70,729	93,177	2884	96061	204,407	12.8%		243584	36293	Alexander, Link & Bocking (2002)
2001	246,980	25,756	51,427	77,183	2544	79727	167,253	9.9%		206,033	34736	Alexander & Bocking (2003)
Averages												
1982-2001	317,323	32,470	61,078	38,578	5,486	44,064	273,259	16.8%	211,754	333,720	17,601	
1994-2001	287,005	29,804	61,078	45,073	5,385	50,459	236,547	17.6%		259,578	17,458	
1997,98,00	297,533	28,746	70,729	52,322	4,770	57,092	240,440	16.2%		264,105	18,895	

Table 5. In-river catch and escapement estimates used to compute total sockeye escapements to the Skeena River, 1982-2001.

	Babine	Babine	Harvest above Fence		Harvest below Fence		Total FSC	Total ESSR	Non-Babine Escapement			Terminal
Year	Fence	Miissed[1]	FSC[2]	ESSR[3]	FSC[2]	ESSR[3]	harvest	harvest	Unadjusted	Factor[4]	Adjusted	Run[5]
1982	1,136,835		42,000	0	165,320	0	207,320	0	45,902	3.16	145,176	1,447,331
1983	886,393		20,000	0	119,966	0	139,966	0	27,331	3.96	108,146	1,114,505
1984	1,052,385		12,100	0	166,560	0	178,660	0	23,330	3.97	92,631	1,311,576
1985	2,148,044		16,000	0	168,072	0	184,072	0	44,262	3.68	162,918	2,479,034
1986	701,507		4,050	0	146,716	0	150,766	0	38,305	3.01	115,485	963,708
1987	1,307,852		0	0	139,307	0	139,307	0	36,372	3.54	128,903	1,576,062
1988	1,408,879		25,000	0	109,586	0	134,586	0	33,614	3.53	118,772	1,637,237
1989	1,132,316		22,000	0	126,828	0	148,828	0	27,678	3.72	103,000	1,362,144
1990	978,646		27,008	0	130,177	0	157,185	0	32,920	3.28	108,062	1,216,885
1991	1,176,318		15,650	0	123,419	0	139,069	0	77,050	3.00	231,264	1,531,001
1992	1,142,916	117,514	33,093	0	85,138	0	118,231	0	76,152	3.10	235,791	1,581,359
1993	1,737,426		68,250	104,340	120,105	29,395	188,355	133,735	69,590	3.06	213,165	2,100,091
1994	1,052,905		32,300	15,900	104,011	26,376	136,311	42,276	22,366	6.76	151,084	1,334,376
1995	1,737,009		18,491	80,000	116,925	129,421	135,416	209,421	81,175	3.12	253,547	2,236,902
1996	1,900,591	145,860	39,422	150,000	101,047	234,280	140,469	384,280	78,075	3.45	269,427	2,651,205
1997	995,147	110,992	13,699	75,000	111,767	151,106	125,466	226,106	53,495	3.30	176,368	1,545,380
1998	510,246		9,744	0	120,046	0	129,790	0	21,865	3.91	85,395	715,687
1999	606,136		23,220	0	89,635	0	112,855	0	41,450	3.45	142,828	838,599
2000	1,831,613		23,000	432,456	146,679	352,248	169,679	784,704	17,271	3.60	62,177	2,392,717
2001	1,984,261		12,050	483,310	48,537	217,799	60,587	701,109	33444	3.60	120,402	2,370,999
Mean	1,271,371	124,789	22,854	67,050	121,992	57,031	144,846	124,082	44,082	3.61	151,227	1,620,340

[1] Babine missed is the number of fish estimated to have passed the Babine fence during periods when it was not operational.

[2] FSC = Food, social and ceremonial harvests by Skeena River First Nations

[3] ESSR = River fisheries conducted by Skeena River First Nations to harvest escapements surplus to spawning requirements.

[4] The non-Babine escapement adjustment factor includes an annual adjustment for streams not surveyed and a fixed adjustment of 2.59 for observer efficiency.

[5] Terminal run is the annual estimate of the number of Skeena River sockeye that passed the Tyee test fishery site at the mouth of the Skeena River.

Table 6. Total annual sockeye catch by fishery, and escapements by stock.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Mean	Percent
Catch (thousands)																						
Langara	59	32	32	118	34	35	42	87	69	59	86	221	114	106	0	371	0	0	0	0	73	2.4%
1TS	4	4	18	33	21	45	52	114	27	32	16	37	32	50	19	118	0	0	1	0	31	1.0%
3A	316	106	118	232	51	37	173	60	47	298	198	254	71	614	493	167	2	0	0	0	162	5.3%
3B	122	176	47	73	91	156	104	196	109	391	286	587	185	582	306	337	51	49	97	70	201	6.5%
3C	12	123	28	39	28	52	13	148	51	98	133	226	51	165	53	56	32	83	72	48	76	2.5%
3D	198	47	78	13	14	32	14	25	8	55	71	62	24	26	41	13	31	114	39	25	47	1.5%
3E	0	0	0	52	13	21	0	14	2	46	304	221	17	85	136	10	38	166	98	29	63	2.0%
4W	822	115	202	596	63	93	205	114	151	215	499	580	237	587	863	278	26	0	112	69	291	9.5%
4X	331	48	127	403	94	94	231	93	100	137	237	337	110	296	639	156	20	0	563	654	234	7.6%
4Y	0	0	165	385	117	127	390	144	259	278	471	271	118	372	801	328	18	0	758	339	267	8.7%
4Z	539	122	261	649	187	203	687	272	319	362	448	496	187	424	1116	364	30	6	560	507	387	12.6%
Area 5	72	14	36	55	31	40	40	22	52	46	72	43	36	49	251	20	3	0	0	14	45	1.5%
Noyes	192	503	161	292	235	92	387	325	474	468	614	459	765	241	450	767	365	103	109	390	370	12.0%
Dall	91	141	134	139	210	79	204	192	323	382	459	486	371	255	411	477	122	62	118	147	240	7.8%
Cordova	1	1	1	10	6	1	2	8	9	5	3	9	10	3	18	1	4	0	9	1	5	0.2%
Sumner	122	28	28	172	85	79	57	108	105	89	147	130	157	133	223	118	79	73	58	99	105	3.4%
U.Clar	72	23	66	94	62	57	35	89	82	56	56	76	55	79	89	88	43	35	34	72	63	2.1%
M.Clar	0	4	2	1	3	0	0	5	5	1	6	8	6	23	19	16	8	11	4	14	7	0.2%
L.Clar	104	67	112	154	87	64	47	134	130	102	109	295	102	270	205	126	68	74	110	185	127	4.1%
Revilla	35	19	38	50	43	51	30	81	31	39	69	96	20	53	66	20	20	29	33	25	42	1.4%
Union	0	1	1	0	1	0	0	7	1	3	7	44	9	8	5	26	7	15	7	57	10	0.3%
Tree	191	136	88	173	146	107	116	145	86	132	245	394	100	164	212	167	160	160	95	80	155	5.0%
Term101	1	0	3	18	12	0	0	7	0	6	23	150	0	0	250	40	21	35	36	30	32	1.0%
Term103	0	9	2	17	8	0	1	13	10	14	1	41	5	7	7	29	14	8	7	26	0	0.0%
Dist105	0	0	0	2	0	0	0	0	0	2	0	34	0	24	0	25	3	2	0	2	5	0.2%
Term108	7	0	1	1	4	2	1	10	12	18	53	77	97	77	154	93	22	36	16	1	34	1.1%
Total	3291	1719	1749	3771	1646	1467	2831	2413	2462	3334	4613	5634	2879	4693	6827	4211	1187	1061	2936	2884	3069	
Escapement (thousands)																						
Skeena	1447	1115	1312	2479	964	1576	1637	1362	1217	1531	1581	2100	1334	2237	2651	1394	716	839	2393	2301	1609	67.5%
Nass	373	235	243	448	259	251	190	159	205	382	732	574	344	304	252	287	305	256	300	247	317	13.3%
Stikine	69	72	76	185	69	39	42	75	57	120	155	176	128	142	184	126	90	66	56	50	99	4.1%
US McD	50	56	121	101	95	187	67	76	113	166	100	80	105	44	62	68	58	90	91	43	89	3.7%
US Other	292	219	142	269	210	86	162	226	231	183	405	595	306	234	575	460	158	160	137	318	268	11.3%
Total	2231	1697	1894	3482	1597	2139	2098	1898	1823	2382	2973	3525	2217	2961	3724	2335	1327	1411	2977	2959	2383	

Table 7. Differences in annual sockeye catch by fishery, and escapements by stock, 1982-95.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total	Percent
Catch (thousands)																
Langara	0	0	4	9	2	0	0	0	6	2	0	0	0	1	24	2.2%
1TS	0	0	0	0	0	0	0	0	0	0	0	37	32	50	119	32.5%
3X	4	10	-2	-2	3	-3	1	-10	1	10	1	-16	-2	18	13	0.5%
3Y+7	-8	-6	0	-7	-2	-3	0	5	0	-8	7	238	1	-5	212	5.2%
3Z-7	6	2	3	9	0	9	-1	6	0	2	-6	-221	2	-4	-193	-11.8%
4W	33	0	8	0	0	3	-2	-5	7	0	9	-2	0	-2	49	1.1%
4X	-6	-1	5	-5	0	0	5	-1	0	0	2	24	1	6	30	1.2%
4Y	0	0	7	-10	0	-1	-3	-1	-9	-7	8	3	3	11	1	0.0%
4Z	42	3	-2	15	1	1	8	8	9	10	-4	-14	-3	12	86	1.7%
Area 5	2	0	1	0	0	1	0	0	1	0	0	1	0	-1	5	0.8%
Noyes	1	-7	-2	-17	-7	0	-1	8	-10	-14	-1	-40	-5	-8	-103	-1.9%
Dall	0	0	0	0	0	0	0	0	0	0	1	0	0	-1	0	0.0%
Cordova	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Sumner	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1%
U.Clar	0	0	0	0	1	0	0	1	0	0	-1	0	0	0	1	0.1%
M.Clar	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	-1	-1.5%
L.Clar	44	30	47	64	37	46	26	49	53	43	57	81	40	80	697	64.5%
Revilla	6	3	4	7	4	8	5	3	6	2	6	83	5	14	156	31.3%
Union	0	1	1	0	1	0	0	7	1	3	7	44	9	8	82	
Tree	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0.1%
Term101	0	0	0	0	0	0	0	6	0	-2	0	51	0	-7	48	27.9%
Term103	0	9	2	17	8	0	1	13	10	14	1	41	5	7	128	
Dist105	0	0	0	2	0	0	0	0	0	2	0	34	0	24	62	
Term108	0	0	0	0	0	0	0	-2	1	-6	0	7	-1	1	0	0.0%
Total	125	44	77	81	48	61	39	87	76	52	87	351	87	204	1419	3.5%
Escapement (thousands)																
Skeena	144	103	92	125	123	140	111	102	72	159	34	148	129	173	1655	8.2%
Nass	33	26	22	50	23	32	27	20	26	37	45	-10	-1	-8	322	7.4%
Stikine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
US McD	-7	0	-3	-20	-13	49	-6	-6	-7	-22	-46	-163	-12	-8	-264	-16.2%
US Other	-5	-49	-279	-127	-129	-439	-68	-36	-120	-382	-282	-158	-66	72	-2068	-36.7%
Total	165	80	-168	28	4	-218	64	80	-29	-208	-249	-183	50	229	-355	-1.1%

Table 8. Percentage of sockeye stocks passing through each fishery in the absence of fishing, by migration routes (A-E).

	Skeena					Nass					Stikine	US McD		US Other		
	A	B	C	D	E	A	B	C	D	E	All	ABDE	C	ABE	C	D
1N	34.1	43.0	23.5	24.4	36.2	35.1	29.4	26.3	20.0	46.4	0.0	12.7	12.7	0.1	0.3	0.3
1TS	68.1	86.1	47.0	48.8	72.4	42.8	35.9	32.1	24.4	56.6	0.0	12.7	12.7	0.1	0.3	0.3
3A	58.2	77.9	57.8	61.0	59.0	35.8	34.0	33.0	31.0	38.8	0.0	12.7	12.7	0.1	0.3	0.3
3B	17.0	34.0	17.0	17.0	17.0	100.0	100.0	100.0	100.0	100.0	0.0	10.2	10.2	0.3	0.7	0.7
3C	8.5	8.5	8.5	8.5	8.5	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
3D	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
3E	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
4W	85.0	85.0	85.0	85.0	85.0	54.0	45.0	40.0	30.0	54.0	0.0	0.0	0.0	0.3	0.6	0.6
4X	100.0	100.0	100.0	100.0	100.0	43.2	36.0	32.0	24.0	43.2	0.0	0.0	0.0	0.2	0.6	0.6
4Y	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4Z	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Area 5	15.0	15.0	15.0	15.0	15.0	41.0	34.2	30.4	22.8	41.0	0.0	0.0	0.0	0.2	0.6	0.6
Refuge	25.5	5.0	25.5	21.3	25.5	16.9	22.8	1.6	32.7	14.8	0.0	14.9	24.8	13.7	22.6	13.5
Noyes	39.5	50.7	47.0	50.0	38.0	39.8	38.6	61.5	40.5	32.8	0.0	34.7	24.8	31.9	22.6	31.6
Dall	39.5	50.7	47.0	50.0	38.0	39.8	38.6	61.5	40.5	32.8	0.0	34.7	24.8	31.9	22.6	31.6
Cordova	5.5	7.6	23.6	25.6	1.8	32.1	32.2	55.7	36.1	22.6	0.0	49.5	49.5	45.6	45.1	45.1
Sumner	0.9	1.3	4.0	4.3	0.3	8.2	9.1	10.6	6.9	6.1	100.0	37.8	37.8	52.0	52.0	52.0
U-Clar	0.9	1.3	4.0	4.3	0.3	8.2	9.1	10.6	6.9	6.1	20.0	37.8	37.8	52.0	52.0	52.0
M-Clar	0.9	1.3	4.0	4.3	0.3	8.2	9.1	10.6	6.9	6.1	0.0	37.8	37.8	48.0	48.0	48.0
L-Clar	7.1	9.9	30.6	33.2	2.3	38.2	38.3	66.4	43.0	26.9	0.0	90.0	90.0	45.6	45.1	45.1
Revilla	0.6	0.7	0.9	1.4	0.3	2.1	3.0	17.5	4.5	1.8	0.0	20.0	20.0	10.0	10.0	10.0
Union	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	40.0	40.0
Tree	1.3	7.1	1.7	2.7	0.5	21.0	30.0	35.0	45.0	18.0	0.0	12.7	12.7	1.5	3.5	3.5
Term101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0
Term103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0
Dist105	0.9	1.3	4.0	4.3	0.3	8.2	9.1	10.6	6.9	6.1	100.0	37.8	37.8	52.0	52.0	52.0
Term108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0

Table 9. Estimates of total run size and exploitation rates by stock based on the equal vulnerability assumption, and the stock composition estimates from the Alaska scale sample data analyses.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Mean	Percent
Equal Vulnerability																						
Stock Size (thousands)																						
Skeena	3,879	1,996	2,475	5,354	1,932	2,506	4,137	2,661	2,836	3,864	4,229	4,775	2,629	5,575	7,691	3,940	997	934	4,721	4,393	3,560	67%
Nass	985	635	511	841	536	528	348	599	419	894	2,038	2,200	892	1,165	893	877	690	849	653	536	848	16%
Stikine	106	81	87	254	94	55	55	109	89	168	258	296	298	270	425	271	141	127	87	67	170	3%
US MciD	102	133	283	267	261	367	131	187	227	363	262	469	248	133	559	237	162	255	221	161	259	5%
US Other	439	382	244	473	391	127	249	393	395	328	667	1,079	578	488	950	866	311	287	215	684	479	9%
Alaska %	10%	16%	15%	10%	20%	14%	8%	15%	16%	12%	12%	18%	18%	8%	14%	18%	21%	22%	7%	14%	14%	
Harvest Rate (%)																						
Skeena	63	44	47	54	50	37	60	49	57	60	63	56	49	60	66	65	28	10	49	48	50.1	
Nass	62	63	52	47	52	52	45	73	51	57	64	74	61	74	72	67	56	70	54	54	59.9	
Stikine	35	11	12	27	26	29	23	31	35	29	40	40	57	47	57	54	36	48	35	25	34.8	
US MciD	51	58	57	62	64	49	48	59	50	54	62	83	58	67	89	71	64	65	59	73	62.7	
US Other	33	43	42	43	46	32	35	43	41	44	39	45	47	52	39	47	49	44	36	53	43.2	
Using Alaska Scale Data																						
Stock Size (thousands)																						
Skeena	3,765	1,967	2,428	5,338	1,843	2,400	4,003	2,633	2,722	3,760	4,199	4,754	2,720	5,610	7,486	3,759	1,003	928	4,692	4,385	3,507	66%
Nass	921	615	543	841	659	563	401	587	460	959	1,960	2,151	837	1,169	1,054	995	712	843	626	581	871	16%
Stikine	113	78	81	217	76	43	45	91	73	156	242	313	273	247	401	238	116	121	76	67	155	3%
US MciD	136	159	296	286	248	420	167	198	266	390	315	505	246	135	597	271	165	255	259	155	281	5%
US Other	576	407	252	506	387	156	304	440	445	353	738	1,096	569	469	976	924	307	302	243	653	501	9%
Alaska %	13%	18%	15%	11%	20%	16%	10%	16%	18%	13%	14%	18%	18%	8%	15%	19%	20%	23%	9%	14%	15%	
Harvest Rate (%)																						
Skeena	62	43	46	54	48	34	59	48	55	59	62	56	51	60	65	63	29	10	49	48	49.4	
Nass	60	62	55	47	61	55	53	73	55	60	63	73	59	74	76	71	57	70	52	57	61.7	
Stikine	39	8	6	15	9	9	7	18	21	23	36	44	53	42	54	47	22	45	26	25	26.8	
US MciD	64	65	59	65	62	55	60	62	58	57	68	84	57	67	90	75	65	65	65	72	65.8	
US Other	49	46	43	47	46	45	47	49	48	48	45	46	46	50	41	50	49	47	44	51	46.7	

Table 10. Differences between run reconstruction results based on the equal vulnerability assumption, and on the Alaskan scale sample data analyses, expressed as a percentage of the estimates based on equal vulnerability.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Mean
Stock Size (% change)																					
Skeena	3	1	2	0	5	4	3	1	4	3	1	0	-3	-1	3	5	-1	1	1	0	2
Nass	6	3	-6	0	-23	-7	-15	2	-10	-7	4	2	6	0	-18	-13	-3	1	4	-8	-3
Stikine	-7	4	7	15	19	22	18	17	18	7	6	-6	8	9	6	12	18	5	13	0	9
US McD	-33	-20	-5	-7	5	-14	-27	-6	-17	-7	-20	-8	1	-2	-7	-14	-2	0	-17	4	-8
US Other	-31	-7	-3	-7	1	-23	-22	-12	-13	-8	-11	-2	2	4	-3	-7	1	-5	-13	5	-5
US Total	-32	-10	-4	-7	3	-17	-24	-10	-14	-8	-13	-3	1	3	-4	-8	0	-3	-15	4	-6
Harvest Rate (difference)																					
Skeena	1	1	1	0	2	3	1	1	2	1	1	0	-2	0	1	2	-1	0	0	0	1
Nass	2	1	-3	0	-9	-3	-8	0	-4	-3	1	1	2	0	-4	-4	-1	0	2	-3	-2
Stikine	-4	3	6	12	17	20	16	13	14	6	4	-4	4	5	3	7	14	3	9	0	8
US McD	-13	-7	-2	-3	2	-6	-12	-3	-8	-3	-6	-1	1	0	-1	-4	-1	0	-6	1	-3
US Other	-16	-3	-1	-4	0	-13	-12	-6	-7	-4	-6	-1	1	2	-2	-3	0	-3	-8	2	-4

Table 11. Estimates of Alaska stock contributions (%) to northern boundary fisheries, from reconstructions using scale sample data.

Fishery	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Mean
Langara	3	7	4	2	5	7	2	3	2	3	3	3	1	2	0	4	0	0	0	0	2.6
1TS	2	5	1	1	3	4	1	1	4	3	2	7	2	2	4	5	0	0	3	0	2.5
3A	4	4	6	2	5	5	1	4	4	3	3	4	2	1	3	2	4	0	0	0	2.9
3B	5	7	12	6	7	11	3	7	9	4	5	6	4	2	6	4	3	6	2	3	5.6
3C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
3D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
3E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
4W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
4X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
4Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
4Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Area 5	1	1	0	0	1	0	0	2	1	0	1	1	0	0	1	1	1	0	0	0	0.6
Noyes	38	21	27	21	21	40	17	10	14	20	17	20	19	15	23	18	11	39	32	16	22.0
Dall	38	22	26	23	22	40	19	10	17	18	18	21	12	16	26	17	18	45	32	18	22.9
Cordova	88	70	87	70	71	98	34	96	92	91	89	88	88	90	99	79	85	100	86	68	83.5
Sumner	49	67	69	48	68	82	88	65	59	52	59	40	55	31	51	61	63	71	70	63	60.6
U-Clar	48	67	68	44	69	83	87	67	63	58	61	41	57	30	58	65	66	74	70	76	62.6
M-Clar	0	60	56	77	73	0	0	77	76	76	89	95	45	76	88	84	79	89	83	52	63.8
L-Clar	51	40	57	56	65	55	43	27	49	59	67	72	36	32	69	79	52	70	36	49	53.2
Revilla	56	47	61	67	61	69	41	32	50	56	75	73	44	34	77	79	54	81	48	53	57.9
Union	100	100	100	100	100	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	90.0
Tree	36	36	39	17	9	23	13	23	16	11	20	11	14	8	14	19	10	9	18	14	18.0
Term101*	100		100	100	100			100		100	100	100			100	100	100	100	100	100	100.0
Term103	100	100	100	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0
Dist105	100	72	76	63	60	100	48	0	78	70	73	65	68	43	58	64	60	84	58	84	66.2
Term108*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

* Term101 is a terminal fishery for the McDonald Lake stock and Term108 is a terminal fishery for the Stikine stock.

Table 12. Differences between the run reconstruction estimates based on new input data and migration route parameters, and those reported by Gazey and English (2000) based on the equal vulnerability assumption and the Alaskan scale sample data analyses.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Mean
Equal Vulnerability															
Stock Size (thousands)															
Skeena	304	42	107	25	86	121	96	70	56	344	126	369	156	296	157
Nass	89	51	23	132	27	90	44	171	96	-88	-29	-297	-72	-93	10
Stikine	1	2	6	24	9	7	4	-2	5	3	16	25	17	22	10
US McD	-18	36	101	49	66	195	32	36	22	52	13	-27	39	5	43
US Other	-85	-6	-324	-115	-137	-571	-72	-111	-132	-468	-289	98	11	206	-143
Alaska %	-3%	0%	-6%	-1%	-3%	-9%	-1%	-3%	-3%	-7%	-3%	0%	1%	2%	-2%
Harvest Rate (%)															
Skeena	-1	-4	-1	-2	-4	-3	-2	-2	-2	-1	1	0	-2	-1	-2
Nass	0	-1	-3	3	-2	2	-1	5	6	-8	-3	-3	-3	-1	-1
Stikine	0	2	6	7	7	11	6	-1	3	2	4	5	2	4	4
US McD	-2	16	25	17	19	29	21	13	9	14	21	32	14	7	17
US Other	-10	12	16	10	10	7	7	-5	8	15	11	22	13	10	9
Using Alaska Scale Data															
Stock Size (thousands)															
Skeena	294	88	148	83	128	136	140	73	95	256	104	379	224	419	183
Nass	47	77	34	146	54	73	45	169	55	-9	37	-241	1	-52	31
Stikine	2	1	0	2	0	0	0	-2	1	-6	4	22	0	10	2
US McD	4	42	100	35	39	235	44	34	22	65	31	-21	14	-34	44
US Other	-53	-84	-363	-152	-167	-602	-117	-109	-124	-450	-326	40	-76	124	-176
Alaska %	-2%	-2%	-7%	-2%	-4%	-9%	-2%	-3%	-3%	-6%	-4%	0%	-2%	1%	-3%
Harvest Rate (%)															
Skeena	0	-3	0	-1	-3	-3	-1	-3	-1	-2	0	1	-1	0	-1
Nass	-1	1	-2	4	0	0	-1	6	-1	-4	-1	-3	0	0	0
Stikine	1	1	0	1	0	0	0	-1	1	-3	1	5	0	2	1
US McD	7	13	22	13	14	30	20	12	7	15	19	30	7	-2	15
US Other	-4	1	11	7	7	14	2	-3	10	18	10	17	4	-3	7

Table 13. Total annual catch by fishery and escapement for the Skeena River stocks, 1982-2001.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Catch											
1N	43,921	15,178	5,048	73,004	24,315	21,375	37,223	9,633	22,928	22,914	32,140
1TS	1,393	1,782	1,800	12,645	14,481	26,886	42,822	15,998	17,863	28,394	8,665
3A	283,214	91,196	103,442	214,753	42,485	32,792	165,463	53,795	41,828	264,614	159,018
3B	75,456	93,875	27,147	50,672	39,436	87,587	80,541	118,511	69,030	269,012	116,236
3C	3,693	60,431	13,424	24,410	11,615	21,996	8,246	70,964	29,638	38,210	32,724
3D	0	0	0	0	0	0	0	0	0	0	0
3E	0	0	0	0	0	0	0	0	0	0	0
4W	761,257	101,553	179,351	550,255	54,652	87,001	194,233	106,507	145,354	192,809	408,004
4X	294,589	44,362	114,294	369,528	88,286	89,854	223,245	86,947	97,379	126,601	198,312
4Y	0	0	165,017	385,245	116,651	126,586	389,634	143,657	259,054	277,903	471,083
4Z	539,230	121,527	261,296	649,470	186,636	202,857	687,286	272,008	318,896	361,931	448,352
Area 5	46,980	10,028	28,392	38,615	23,349	27,710	34,562	16,358	44,534	29,232	33,790
Noyes	105,261	205,239	92,250	206,953	115,591	34,776	300,847	122,595	199,147	284,815	367,097
Dall	50,559	53,821	77,077	97,566	105,579	29,646	150,841	90,621	147,901	241,620	266,993
Cordova	42	209	76	2,373	1,265	0	878	232	654	322	215
Sumner	15,499	1,898	2,491	41,327	8,908	3,800	3,005	22,425	24,628	7,222	19,692
U-Clar	11,008	1,689	6,581	23,573	6,343	3,780	2,143	18,195	20,314	5,011	7,606
M-Clar	0	607	285	107	276	0	0	701	1,123	148	278
L-Clar	29,036	20,602	23,242	45,943	10,309	9,106	9,506	68,751	31,969	17,778	14,364
Revilla	10,473	6,836	6,540	13,109	4,253	3,169	6,639	19,118	7,334	6,975	7,276
Union	0	0	0	0	0	0	0	0	0	0	0
Tree	46,001	21,782	8,429	58,768	24,568	15,460	28,313	33,776	25,508	52,929	26,262
Term101	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0	0	0	0	0
Dist105	0	9	1	218	57	0	32	0	7	118	1
Term108	0	0	0	0	0	0	0	0	0	0	0
In River	207,320	139,966	178,660	184,072	150,766	139,307	134,586	148,828	157,185	139,069	118,231
Total Catch	2,524,932	992,590	1,294,843	3,042,606	1,029,821	963,688	2,500,045	1,419,620	1,662,274	2,367,627	2,736,339
Escapement											
Gross	1,447,331	1,114,507	1,311,575	2,479,035	963,709	1,576,061	1,637,238	1,362,147	1,216,884	1,530,996	1,581,361
Net	1,240,011	974,541	1,132,915	2,294,963	812,943	1,436,754	1,502,652	1,213,319	1,059,699	1,391,927	1,463,130
Total Run	3,764,943	1,967,131	2,427,758	5,337,569	1,842,764	2,400,442	4,002,697	2,632,939	2,721,973	3,759,554	4,199,469
Skeena AAH	2,664,943	992,590	1,327,758	4,237,569	1,029,821	1,300,442	2,902,697	1,532,939	1,662,274	2,659,554	3,099,469
Alaska %											
Noyes-Dall	5.8%	26.1%	12.8%	7.2%	21.5%	5.0%	15.6%	13.9%	20.9%	19.8%	20.5%
Tree Point	1.7%	2.2%	0.6%	1.4%	2.4%	1.2%	1.0%	2.2%	1.5%	2.0%	0.8%
Other	2.5%	3.2%	3.0%	3.0%	3.1%	1.5%	0.8%	8.4%	5.2%	1.4%	1.6%
Total	10.1%	31.5%	16.3%	11.6%	26.9%	7.7%	17.3%	24.6%	27.6%	23.2%	22.9%
Canadian %											
Area 3	13.6%	24.7%	10.8%	6.8%	9.1%	10.9%	8.8%	15.9%	8.5%	21.5%	9.9%
Area 4	59.9%	26.9%	54.2%	46.1%	43.3%	38.9%	51.5%	39.7%	49.4%	36.1%	49.2%
In-river	7.8%	14.1%	13.5%	4.3%	14.6%	10.7%	4.6%	9.7%	9.5%	5.2%	3.8%
Other	3.5%	2.7%	2.7%	2.9%	6.0%	5.8%	3.9%	2.7%	5.1%	3.0%	2.4%
Total	84.7%	68.5%	81.2%	60.2%	73.1%	66.4%	68.8%	68.1%	72.4%	65.8%	65.4%

Table 13 (continued).

	1993	1994	1995	1996	1997	1998	1999	2000	2001	1985-97	1999-01
Catch											
1N	46,497	28,243	86,452	0	184,932	0	0	0	0	45,358	0
1TS	18,986	19,698	43,093	17,197	78,137	0	0	902	0	26,528	301
3A	203,423	62,548	558,200	458,663	150,347	1,647	0	0	0	185,225	0
3B	239,789	86,663	371,469	200,483	199,086	15,246	10,228	56,817	44,222	148,347	37,089
3C	81,639	18,922	89,438	33,277	26,026	6,769	9,244	33,421	26,854	37,470	23,173
3D	0	0	0	0	0	0	0	0	0	0	0
3E	0	0	0	0	0	0	0	0	0	0	0
4W	461,266	206,211	535,719	814,767	247,331	19,512	0	106,945	65,132	308,008	57,359
4X	271,591	95,762	267,799	601,278	139,762	16,091	0	542,491	627,155	204,334	389,882
4Y	270,510	117,765	371,517	801,309	327,713	18,372	0	758,124	339,230	312,202	365,785
4Z	495,551	186,618	424,361	1,115,910	363,671	30,037	5,507	559,567	506,559	439,504	357,211
Area 5	21,405	19,751	31,086	194,535	11,865	1,371	0	0	11,035	40,522	3,678
Noyes	182,015	351,075	139,293	233,881	321,603	63,789	24,621	57,227	271,903	219,976	117,917
Dall	206,494	104,710	150,758	209,826	206,767	32,181	16,760	61,977	100,495	154,563	59,744
Cordova	617	805	184	0	110	388	0	263	273	589	179
Sumner	28,639	18,796	58,855	32,077	19,256	15,731	640	8,529	7,674	22,202	5,614
U-Clar	18,110	9,104	40,817	17,350	22,745	8,486	412	6,157	5,722	15,007	4,097
M-Clar	30	3,394	4,492	2,126	1,702	968	667	491	4,813	1,106	1,990
L-Clar	44,397	40,141	128,428	43,550	16,250	12,888	4,799	60,623	53,305	36,961	39,576
Revilla	13,809	6,032	22,705	9,898	2,545	3,156	1,679	14,370	5,733	9,451	7,261
Union	0	0	0	0	0	0	0	0	0	0	0
Tree	44,579	9,319	39,633	49,031	40,265	40,172	15,054	31,592	13,929	34,493	20,192
Term101	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0	0	0	0	0
Dist105	4,364	13	8,817	50	5,070	379	30	30	47	1,442	36
Term108	0	0	0	0	0	0	0	0	0	0	0
In River	322,090	178,587	344,837	524,749	200,466	129,790	112,855	954,383	761,696	210,983	609,645
Total Catch	2,975,801	1,564,157	3,717,953	5,359,957	2,565,649	416,973	202,496	3,253,909	2,845,777	2,454,272	2,100,727
Escapement											
Gross	2,100,087	1,334,373	2,236,899	2,651,202	1,394,273	715,689	838,601	2,392,719	2,300,594	1,697,251	1,843,971
Net	1,777,997	1,155,786	1,892,062	2,126,453	1,193,807	585,899	725,746	1,438,336	1,538,898	1,486,269	1,234,327
Total Run	4,753,798	2,719,943	5,610,015	7,486,410	3,759,456	1,002,872	928,242	4,692,245	4,384,675	3,940,541	3,335,054
Skeena AAH	3,653,798	1,619,943	4,510,015	6,386,410	2,659,456	416,973	202,496	3,592,245	3,284,675	2,865,722	2,359,805
Alaska %											
Noyes-Dall	10.6%	28.1%	6.4%	6.9%	19.9%	23.0%	20.4%	3.3%	11.3%	13.1%	7.5%
Tree Point	1.2%	0.6%	0.9%	0.8%	1.5%	9.6%	7.4%	0.9%	0.4%	1.2%	0.9%
Other	3.0%	4.8%	5.9%	1.6%	2.5%	10.1%	4.1%	2.5%	2.4%	3.0%	2.5%
Total	14.9%	33.5%	13.2%	9.4%	23.9%	42.7%	31.9%	6.7%	14.1%	17.3%	10.9%
Canadian %											
Area 3	14.4%	10.4%	22.6%	10.8%	14.1%	5.7%	9.6%	2.5%	2.2%	12.9%	2.6%
Area 4	41.0%	37.4%	35.5%	52.2%	40.6%	20.1%	2.7%	54.8%	46.8%	44.1%	49.6%
In-river	8.8%	11.0%	7.6%	8.2%	7.5%	31.1%	55.7%	26.6%	23.2%	7.4%	25.8%
Other	2.4%	4.2%	3.6%	3.3%	10.3%	0.3%	0.0%	0.0%	0.3%	3.9%	0.2%
Total	66.6%	63.0%	69.3%	74.6%	72.5%	57.3%	68.1%	83.9%	72.5%	68.3%	78.1%

Table 14. Total annual catch by fishery and escapement for Nass River stocks, 1982-2001.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Catch											
1N	5,430	3,278	573	5,700	2,853	2,553	941	1,108	1,770	2,128	11,204
1TS	130	248	146	642	828	1,909	987	1,687	651	978	1,346
3A	19,937	9,637	7,947	12,748	5,590	1,929	5,602	4,160	2,870	24,606	32,364
3B	39,696	69,602	14,811	18,443	44,848	50,117	19,429	63,753	30,228	108,192	154,641
3C	7,894	62,072	14,562	14,426	16,273	29,569	5,026	76,780	21,279	60,004	100,464
3D	197,854	47,097	77,677	13,144	14,271	32,115	13,502	24,599	8,253	54,831	71,369
3E	0	0	0	52,080	12,521	21,356	171	13,830	1,529	46,090	304,326
4W	59,511	13,074	22,545	45,023	8,384	5,963	10,344	7,093	5,135	21,856	89,654
4X	35,027	3,808	12,187	33,366	5,816	4,346	7,536	5,565	2,201	10,026	37,942
4Y	0	0	0	0	0	0	0	0	0	0	0
4Z	0	0	0	0	0	0	0	0	0	0	0
Area 5	24,528	4,188	6,992	15,684	7,544	11,888	5,635	5,388	6,926	16,334	37,466
Noyes	14,548	54,445	25,503	16,708	57,974	20,620	21,951	33,093	28,951	49,491	98,624
Dall	5,944	15,640	21,353	8,497	52,327	17,257	13,597	27,633	30,862	46,914	68,330
Cordova	52	133	70	488	514	31	243	108	95	114	128
Sumner	24,216	3,859	5,359	27,127	16,481	8,708	2,922	11,587	16,102	22,766	14,534
U-Clar	11,062	3,664	11,557	18,469	11,830	4,945	1,721	8,888	8,296	13,383	5,308
M-Clar	0	1,201	419	215	466	0	0	345	130	22	334
L-Clar	21,841	19,907	24,454	22,180	20,148	19,407	17,265	28,673	34,700	24,669	22,145
Revilla	4,798	3,498	8,229	3,609	12,541	12,393	11,196	36,183	8,231	10,546	10,141
Union	0	0	0	0	0	0	0	0	0	0	0
Tree	75,409	65,105	45,595	84,212	108,303	66,943	72,968	77,290	46,095	64,361	168,223
Term101	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0	0	0	0	0
Dist105	0	46	3	126	68	0	81	0	1	97	1
Term108	0	0	0	0	0	0	0	0	0	0	0
In River	22,872	25,439	41,081	41,374	45,604	40,653	34,229	31,502	27,857	72,872	58,696
Total Catch	570,749	405,941	341,063	434,261	445,184	352,702	245,346	459,265	282,162	650,280	1,287,240
Escapement											
Gross	372,880	234,871	243,051	448,416	259,299	250,819	190,022	158,920	205,318	381,588	731,540
Net	350,008	209,432	201,970	407,042	213,695	210,166	155,793	127,418	177,461	308,716	672,844
Total Run	920,757	615,373	543,033	841,303	658,879	562,868	401,139	586,683	459,623	958,996	1,960,084
Nass AAH	720,757	415,373	343,033	641,303	458,879	362,868	245,346	459,265	282,162	758,996	1,760,084
Alaska %											
Noyes-Dall	2.8%	16.9%	13.7%	3.9%	24.0%	10.4%	14.5%	13.2%	21.2%	12.7%	9.5%
Tree Point	10.5%	15.7%	13.3%	13.1%	23.6%	18.4%	29.7%	16.8%	16.3%	8.5%	9.6%
Other	8.6%	7.8%	14.6%	11.3%	13.5%	12.5%	13.6%	18.7%	23.9%	9.4%	3.0%
Total	21.9%	40.3%	41.6%	28.3%	61.2%	41.4%	57.9%	48.7%	61.5%	30.6%	22.0%
Canadian %											
Area 3	36.8%	45.4%	33.5%	17.3%	20.4%	37.2%	17.8%	39.9%	22.7%	38.7%	37.7%
Area 4	13.1%	4.1%	10.1%	12.2%	3.1%	2.8%	7.3%	2.8%	2.6%	4.2%	7.2%
In-river	3.2%	6.1%	12.0%	6.5%	9.9%	11.2%	14.0%	6.9%	9.9%	9.6%	3.3%
Other	4.2%	1.9%	2.2%	3.4%	2.4%	4.5%	3.1%	1.8%	3.3%	2.6%	2.8%
Total	57.3%	57.4%	57.9%	39.4%	35.9%	55.8%	42.1%	51.3%	38.5%	55.1%	51.1%

Table 14 (continued).

	1993	1994	1995	1996	1997	1998	1999	2000	2001	1985-97	1999-01
Catch											
1N	20,222	9,308	14,871	0	31,380	0	0	0	0	8,003	0
1TS	4,976	3,304	4,394	701	11,721	0	0	56	0	2,625	19
3A	40,917	7,443	48,202	17,866	12,869	567	0	0	0	16,705	0
3B	314,795	90,843	200,464	87,507	123,544	34,568	35,853	38,087	23,783	100,523	32,574
3C	144,187	32,483	75,480	19,223	29,718	25,136	73,516	38,469	20,705	48,070	44,230
3D	61,540	23,831	26,061	41,365	13,493	31,379	113,567	38,750	25,425	30,644	59,247
3E	220,942	17,238	84,533	135,644	9,558	37,740	166,388	97,619	29,266	70,755	97,758
4W	118,172	30,297	50,979	47,563	30,333	6,401	0	5,380	3,582	36,215	2,987
4X	64,945	14,096	27,813	36,551	15,878	3,611	0	20,661	26,686	20,468	15,782
4Y	0	0	0	0	0	0	0	0	0	0	0
4Z	0	0	0	0	0	0	0	0	0	0	0
Area 5	21,212	16,545	18,027	55,418	8,189	1,997	0	0	2,432	17,404	811
Noyes	76,160	83,963	49,331	90,794	164,249	77,376	22,001	8,451	53,788	60,916	28,080
Dall	106,094	38,154	58,560	77,226	129,842	40,006	13,706	8,877	20,314	51,946	14,299
Cordova	529	368	95	130	60	170	0	1,013	83	223	365
Sumner	14,096	13,758	15,746	23,384	14,366	11,508	7,091	5,794	15,454	15,506	9,446
U-Clar	8,381	4,204	7,537	10,653	4,146	5,414	2,939	2,969	9,361	8,289	5,090
M-Clar	342	149	1,041	225	886	703	475	213	1,610	320	766
L-Clar	38,302	24,713	56,541	19,276	10,694	19,974	17,394	9,876	40,228	26,055	22,499
Revilla	12,548	5,125	12,486	5,502	1,566	6,011	3,900	2,980	5,768	10,928	4,216
Union	0	0	0	0	0	0	0	0	0	0	0
Tree	307,034	76,941	111,085	133,218	94,427	104,000	129,794	46,305	55,096	108,546	77,065
Term101	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0	0	0	0	0
Dist105	1,494	6	1,742	21	598	329	158	14	50	326	74
Term108	0	0	0	0	0	0	0	0	0	0	0
In River	35,434	34,325	39,054	34,220	36,786	38,430	45,065	96,061	79,727	40,970	73,618
Total Catch	1,612,322	527,094	904,042	836,487	744,303	445,320	631,847	421,575	413,358	675,438	488,927
Escapement											
Gross	573,697	344,369	303,743	252,129	287,246	304,893	256,024	300,469	246,985	337,470	267,826
Net	538,263	310,044	264,689	217,909	250,460	266,463	210,959	204,408	167,258	296,500	194,208
Total Run	2,150,585	837,138	1,168,731	1,054,396	994,763	711,783	842,806	625,983	580,616	971,938	683,135
Nass AAH	1,950,585	637,138	968,731	854,396	794,763	511,783	642,806	425,983	413,358	782,655	494,049
Alaska %											
Noyes-Dall	9.3%	19.2%	11.1%	19.7%	37.0%	22.9%	5.6%	4.1%	17.9%	14.4%	8.6%
Tree Point	15.7%	12.1%	11.5%	15.6%	11.9%	20.3%	20.2%	10.9%	13.3%	13.9%	15.6%
Other	3.9%	7.6%	9.8%	6.9%	4.1%	8.6%	5.0%	5.4%	17.6%	7.9%	8.6%
Total	29.0%	38.8%	32.4%	42.2%	53.0%	51.9%	30.7%	20.3%	48.8%	36.2%	32.8%
Canadian %											
Area 3	40.1%	27.0%	44.9%	35.3%	23.8%	25.3%	60.6%	50.0%	24.0%	34.1%	47.3%
Area 4	9.4%	7.0%	8.1%	9.8%	5.8%	2.0%	0.0%	6.1%	7.3%	7.2%	3.8%
In-river	1.8%	5.4%	4.0%	4.0%	4.6%	7.5%	7.0%	22.6%	19.3%	5.2%	14.9%
Other	2.4%	4.6%	3.8%	6.6%	6.5%	0.4%	0.0%	0.0%	0.6%	3.6%	0.2%
Total	53.7%	43.9%	60.9%	55.7%	40.7%	35.1%	67.6%	78.7%	51.2%	50.1%	66.2%

Table 15. Total annual catch by fishery and escapement for Skeena and Nass River stocks combined, 1982-2001.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Catch											
1N	49,351	18,456	5,621	78,704	27,168	23,928	38,164	10,741	24,698	25,042	43,344
1TS	1,523	2,030	1,946	13,287	15,309	28,795	43,809	17,685	18,514	29,372	10,011
3A	303,151	100,833	111,389	227,501	48,075	34,721	171,065	57,955	44,698	289,220	191,382
3B	115,152	163,477	41,958	69,115	84,284	137,704	99,970	182,264	99,258	377,204	270,877
3C	11,587	122,503	27,986	38,836	27,888	51,565	13,272	147,744	50,917	98,214	133,188
3D	197,854	47,097	77,677	13,144	14,271	32,115	13,502	24,599	8,253	54,831	71,369
3E	0	0	0	52,080	12,521	21,356	171	13,830	1,529	46,090	304,326
4W	820,768	114,627	201,896	595,278	63,036	92,964	204,577	113,600	150,489	214,665	497,658
4X	329,616	48,170	126,481	402,894	94,102	94,200	230,781	92,512	99,580	136,627	236,254
4Y	0	0	165,017	385,245	116,651	126,586	389,634	143,657	259,054	277,903	471,083
4Z	539,230	121,527	261,296	649,470	186,636	202,857	687,286	272,008	318,896	361,931	448,352
Area 5	71,508	14,216	35,384	54,299	30,893	39,598	40,197	21,746	51,460	45,566	71,256
Noyes	119,809	259,684	117,753	223,661	173,565	55,396	322,798	155,688	228,098	334,306	465,721
Dall	56,503	69,461	98,430	106,063	157,906	46,903	164,438	118,254	178,763	288,534	335,323
Cordova	94	342	146	2,861	1,779	31	1,121	340	749	436	343
Sumner	39,715	5,757	7,850	68,454	25,389	12,508	5,927	34,012	40,730	29,988	34,226
U-Clar	22,070	5,353	18,138	42,042	18,173	8,725	3,864	27,083	28,610	18,394	12,914
M-Clar	0	1,808	704	322	742	0	0	1,046	1,253	170	612
L-Clar	50,877	40,509	47,696	68,123	30,457	28,513	26,771	97,424	66,669	42,447	36,509
Revilla	15,271	10,334	14,769	16,718	16,794	15,562	17,835	55,301	15,565	17,521	17,417
Union	0	0	0	0	0	0	0	0	0	0	0
Tree	121,410	86,887	54,024	142,980	132,871	82,403	101,281	111,066	71,603	117,290	194,485
Term101	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0	0	0	0	0
Dist105	0	55	4	344	125	0	113	0	8	215	2
Term108	0	0	0	0	0	0	0	0	0	0	0
In River	230,192	165,405	219,741	225,446	196,370	179,960	168,815	180,330	185,042	211,941	176,927
Total Catch	3,095,681	1,398,531	1,635,906	3,476,867	1,475,005	1,316,390	2,745,391	1,878,885	1,944,436	3,017,907	4,023,579
Escapement											
Gross	1,820,211	1,349,378	1,554,626	2,927,451	1,223,008	1,826,880	1,827,260	1,521,067	1,422,202	1,912,584	2,312,901
Net	1,590,019	1,183,973	1,334,885	2,702,005	1,026,638	1,646,920	1,658,445	1,340,737	1,237,160	1,700,643	2,135,974
Total Run	4,685,700	2,582,504	2,970,791	6,178,872	2,501,643	2,963,310	4,403,836	3,219,622	3,181,596	4,718,550	6,159,553
Total AAH	3,585,700	1,482,504	1,870,791	5,078,872	1,475,005	1,863,310	3,303,836	2,119,622	2,081,596	3,618,550	5,059,553
District 104 Catch before Week 31											
Skeena	123,518	96,391	50,732	67,395	39,692	21,355	168,481	100,452	97,221	54,836	42,618
Nass	10,800	18,608	23,142	8,063	24,620	20,210	19,668	24,702	32,819	15,449	13,693
Total	134,318	114,999	73,874	75,458	64,312	41,565	188,149	125,154	130,040	70,285	56,311
% of TAC	3.75%	7.76%	3.95%	1.49%	4.36%	2.23%	5.69%	5.90%	6.25%	1.94%	1.11%
District 104 Allocation before Week 31											
Base Catch	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
Skeena-Nass %	63.0%	68.2%	71.5%	75.0%	70.4%	57.4%	75.6%	86.8%	79.4%	71.3%	72.8%
No.	75,618	81,781	85,801	90,020	84,509	68,906	90,752	104,218	95,271	85,553	87,315
% of TAC	2.11%	5.52%	4.59%	1.77%	5.73%	3.70%	2.75%	4.92%	4.58%	2.36%	1.73%

Table 15. (continued)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	1985-97	1999-01
Catch											
1N	66,719	37,551	101,323	0	216,312	0	0	0	0	53,361	0
1TS	23,962	23,002	47,487	17,898	89,858	0	0	958	0	29,153	319
3A	244,340	69,991	606,402	476,529	163,216	2,214	0	0	0	201,930	0
3B	554,584	177,506	571,933	287,990	322,630	49,814	46,081	94,904	68,005	248,871	69,663
3C	225,826	51,405	164,918	52,500	55,744	31,905	82,760	71,890	47,559	85,540	67,403
3D	61,540	23,831	26,061	41,365	13,493	31,379	113,567	38,750	25,425	30,644	59,247
3E	220,942	17,238	84,533	135,644	9,558	37,740	166,388	97,619	29,266	70,755	97,758
4W	579,438	236,508	586,698	862,330	277,664	25,913	0	112,325	68,714	344,223	60,346
4X	336,536	109,858	295,612	637,829	155,640	19,702	0	563,152	653,841	224,802	405,664
4Y	270,510	117,765	371,517	801,309	327,713	18,372	0	758,124	339,230	312,202	365,785
4Z	495,551	186,618	424,361	1,115,910	363,671	30,037	5,507	559,567	506,559	439,504	357,211
Area 5	42,617	36,296	49,113	249,953	20,054	3,368	0	0	13,467	57,927	4,489
Noyes	258,175	435,038	188,624	324,675	485,852	141,165	46,622	65,678	325,691	280,892	145,997
Dall	312,588	142,864	209,318	287,052	336,609	72,187	30,466	70,854	120,809	206,509	74,043
Cordova	1,146	1,173	279	130	170	558	0	1,276	356	812	544
Sumner	42,735	32,554	74,601	55,461	33,622	27,239	7,731	14,323	23,128	37,708	15,061
U-Clar	26,491	13,308	48,354	28,003	26,891	13,900	3,351	9,126	15,083	23,296	9,187
M-Clar	372	3,543	5,533	2,351	2,588	1,671	1,142	704	6,423	1,426	2,756
L-Clar	82,699	64,854	184,969	62,826	26,944	32,862	22,193	70,499	93,533	63,016	62,075
Revilla	26,357	11,157	35,191	15,400	4,111	9,167	5,579	17,350	11,501	20,379	11,477
Union	0	0	0	0	0	0	0	0	0	0	0
Tree	351,613	86,260	150,718	182,249	134,692	144,172	144,848	77,897	69,025	143,039	97,257
Term101	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0	0	0	0	0
Dist105	5,858	19	10,559	71	5,668	708	188	44	97	1,768	110
Term108	0	0	0	0	0	0	0	0	0	0	0
In River	357,524	212,912	383,891	558,969	237,252	168,220	157,920	1,050,444	841,423	251,952	683,262
Total Catch	4,588,123	2,091,251	4,621,995	6,196,444	3,309,952	862,293	834,343	3,675,484	3,259,135	3,129,710	2,589,654
Escapement											
Gross	2,673,784	1,678,742	2,540,642	2,903,331	1,681,519	1,020,582	1,094,625	2,693,188	2,547,579	2,034,721	2,111,797
Net	2,316,260	1,465,830	2,156,751	2,344,362	1,444,267	852,362	936,705	1,642,744	1,706,156	1,782,769	1,428,535
Total Run	6,904,383	3,557,081	6,778,746	8,540,806	4,754,219	1,714,655	1,771,048	5,318,228	4,965,291	4,912,478	4,018,189
Total AAH	5,804,383	2,457,081	5,678,746	7,440,806	3,654,219	862,293	834,343	4,218,228	3,865,291	3,818,121	2,972,621
District 104 Catch before Week 31											
Skeena	76,465	58,506	33,893	106,080	296,235	5,320	2,035	25,049	137,424	89,479	54,836
Nass	42,967	49,413	23,096	37,108	161,186	6,343	1,197	4,172	30,430	36,384	11,933
Total	119,432	107,919	56,989	143,188	457,421	11,663	3,232	29,221	167,854	125,863	66,769
% of TAC	2.06%	4.39%	1.00%	1.92%	12.52%	1.35%	0.39%	0.69%	4.34%	3.30%	2.25%
District 104 Allocation before Week 31											
Base Catch	120,000	120,000	120,000	120,000	120,000					120,000	
Skeena-Nass											
%	76.3%	73.9%	79.8%	67.0%	82.4%					74.5%	
No.	91,562	88,627	95,811	80,444	98,825					89,370	
% of TAC	1.58%	3.61%	1.69%	1.08%	2.70%					2.34%	

FIGURES

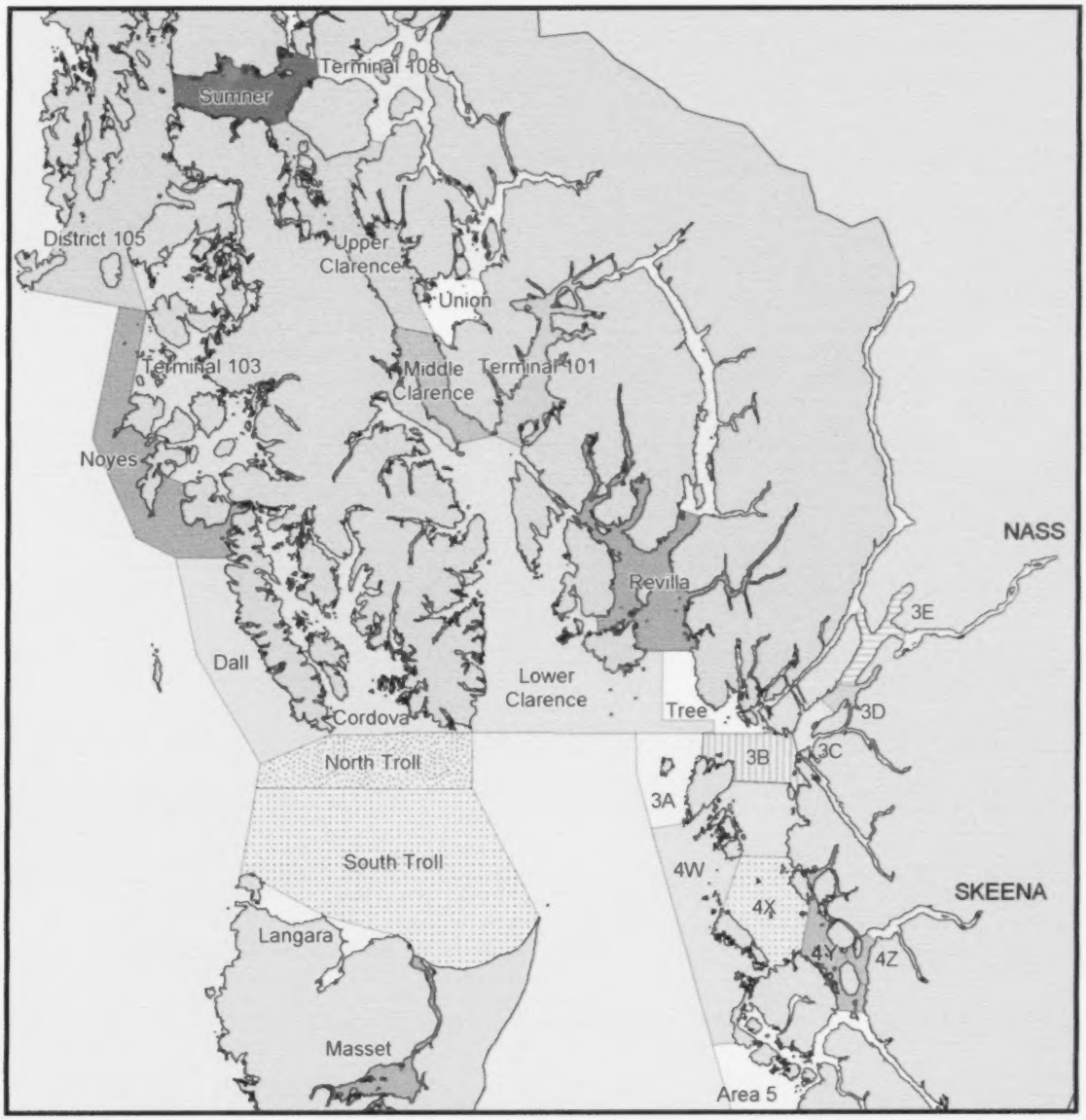


Figure 1. Geographic location and boundaries of Alaskan and Canadian fisheries used for run reconstructions.

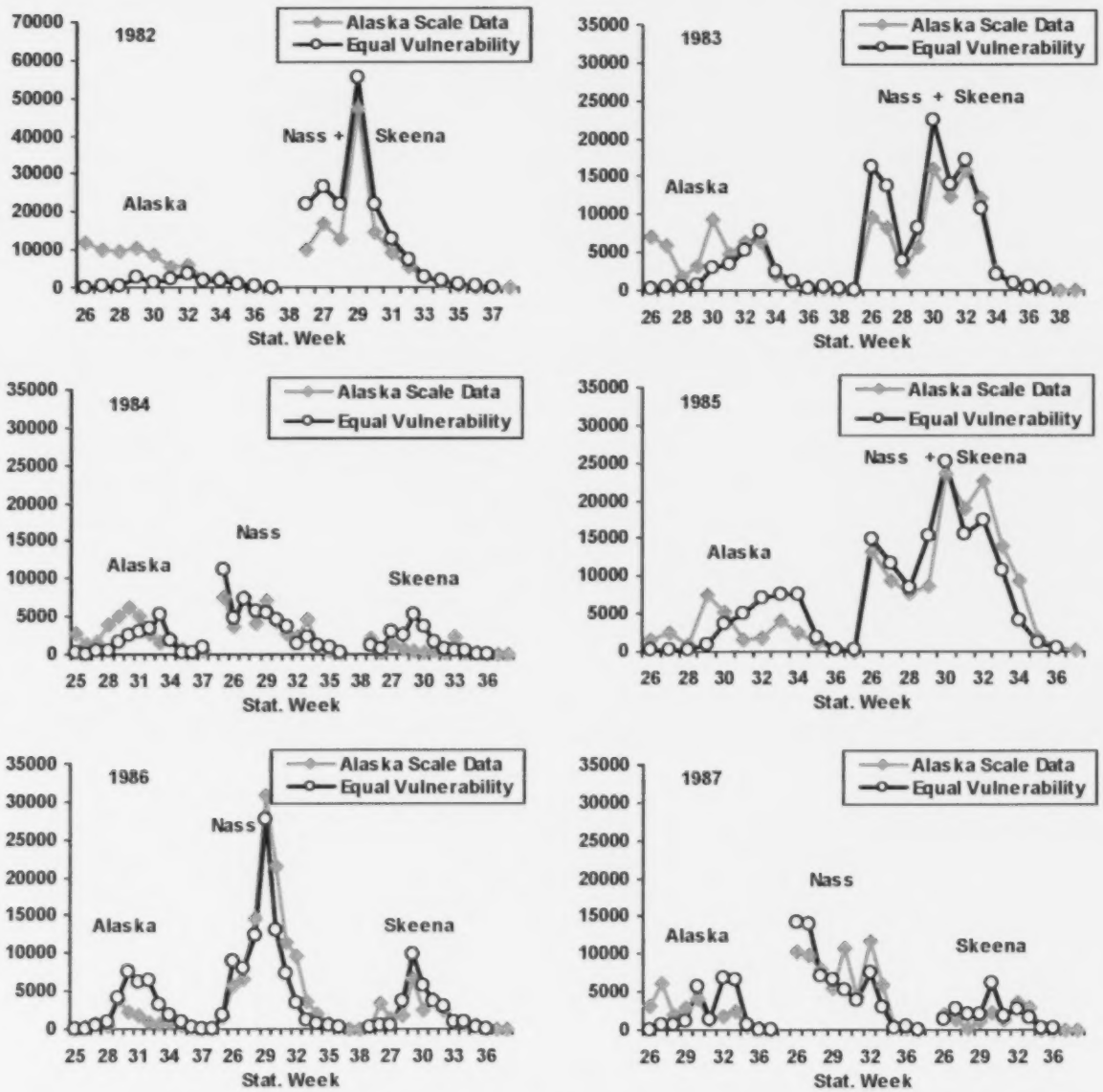


Figure 2. Weekly catch estimates for the Tree Point fishery, by stock and reconstruction method for 1982-87.

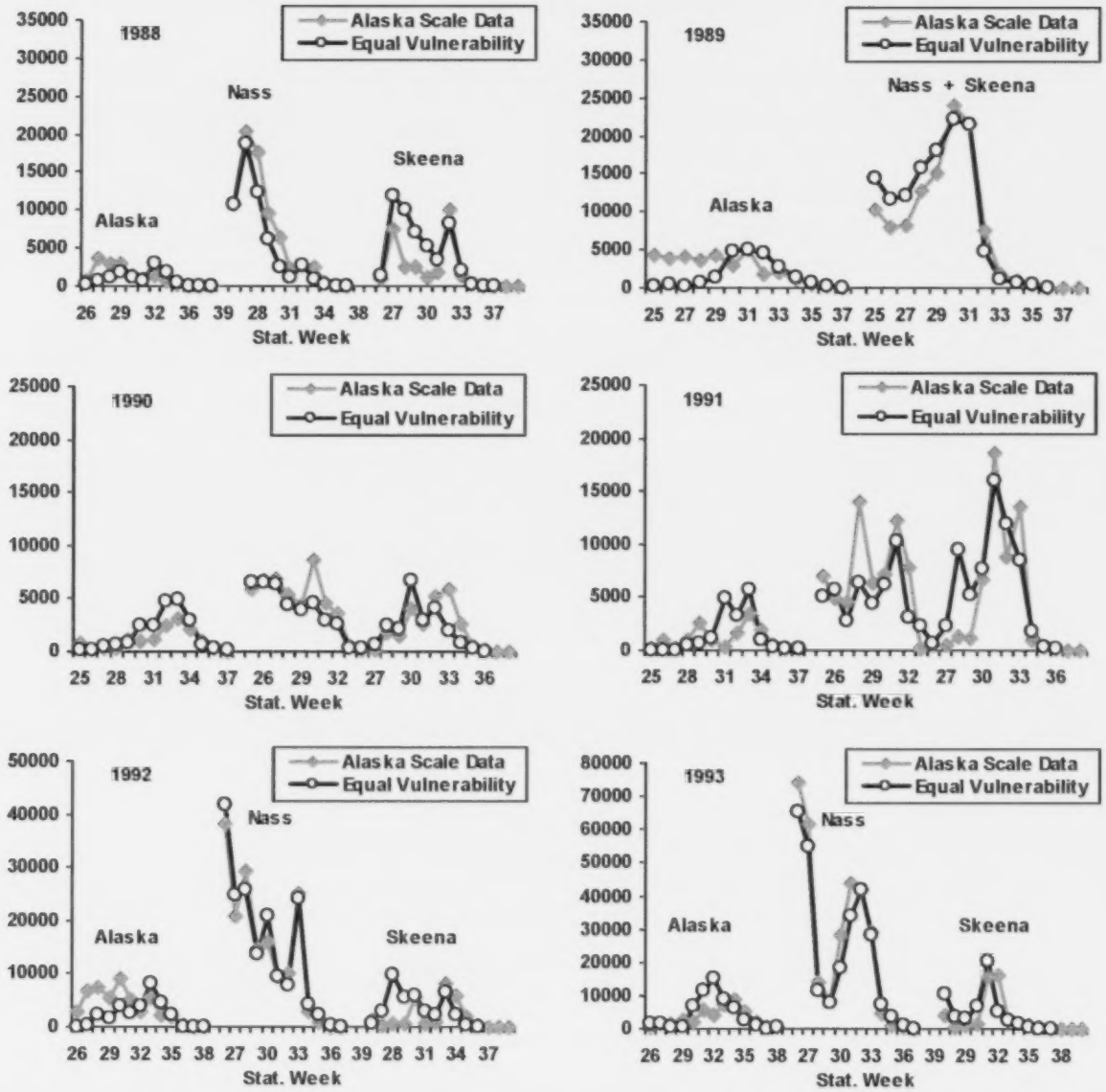


Figure 3. Weekly catch estimates for the Tree Point fishery, by stock and reconstruction method for 1988-93.

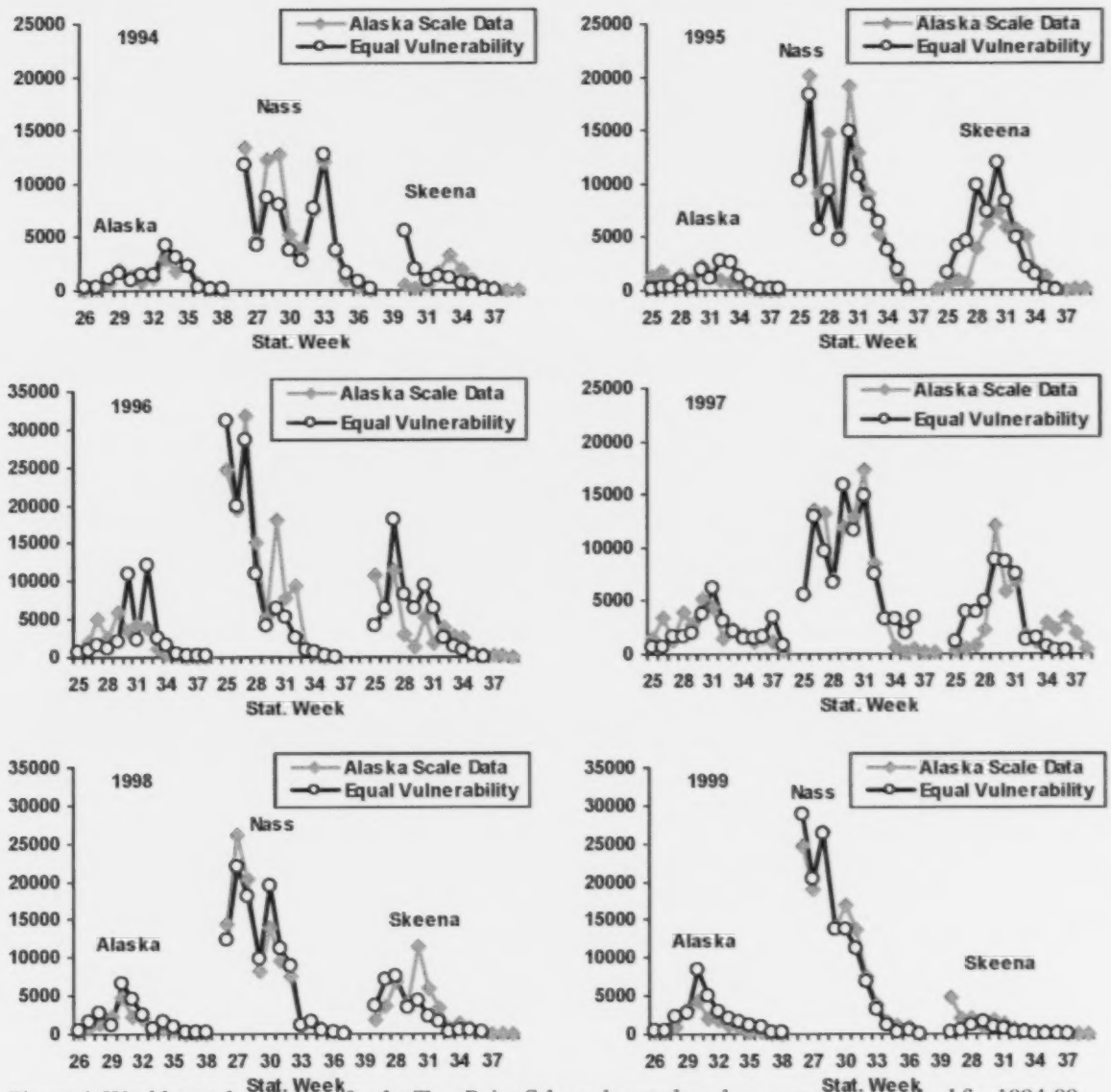


Figure 4. Weekly catch estimates for the Tree Point fishery, by stock and reconstruction method for 1994-99.

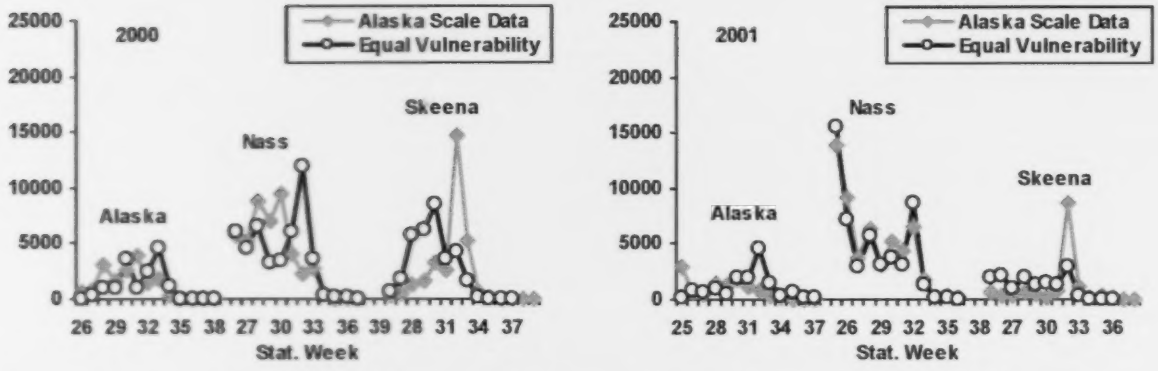
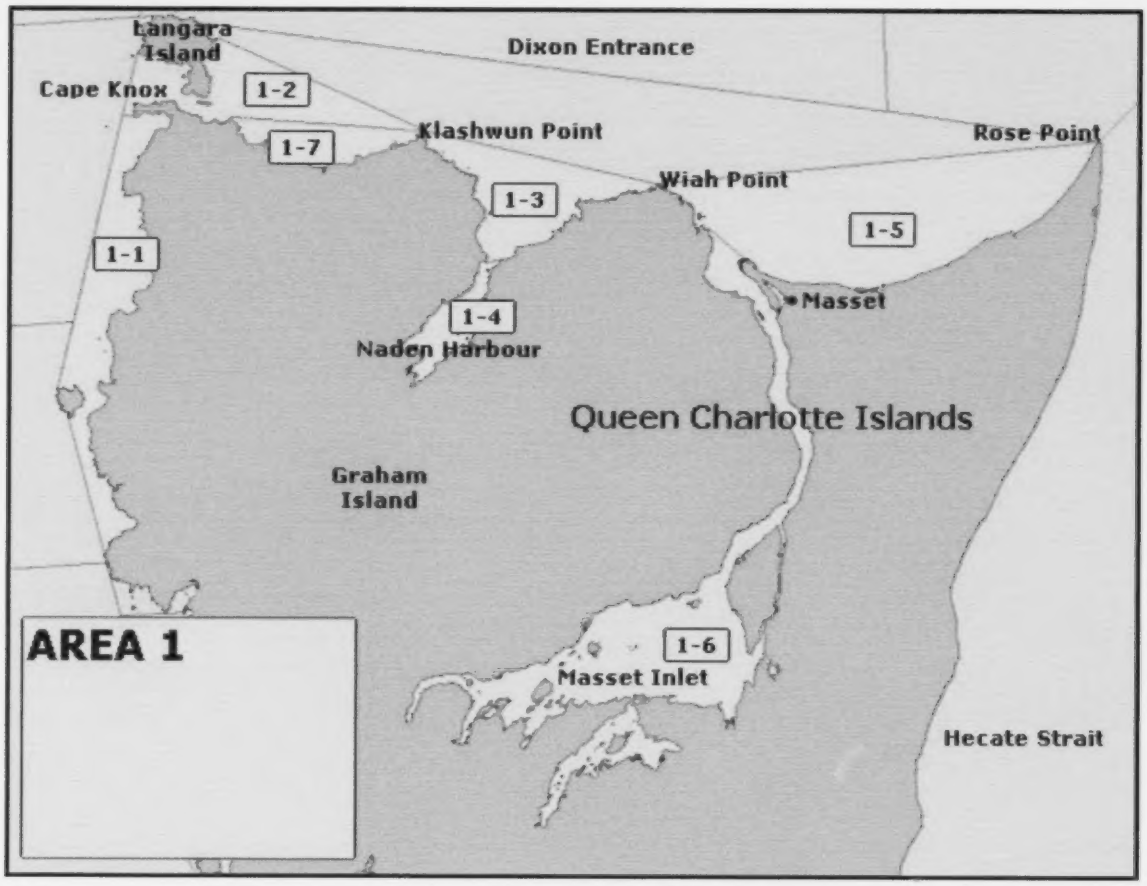


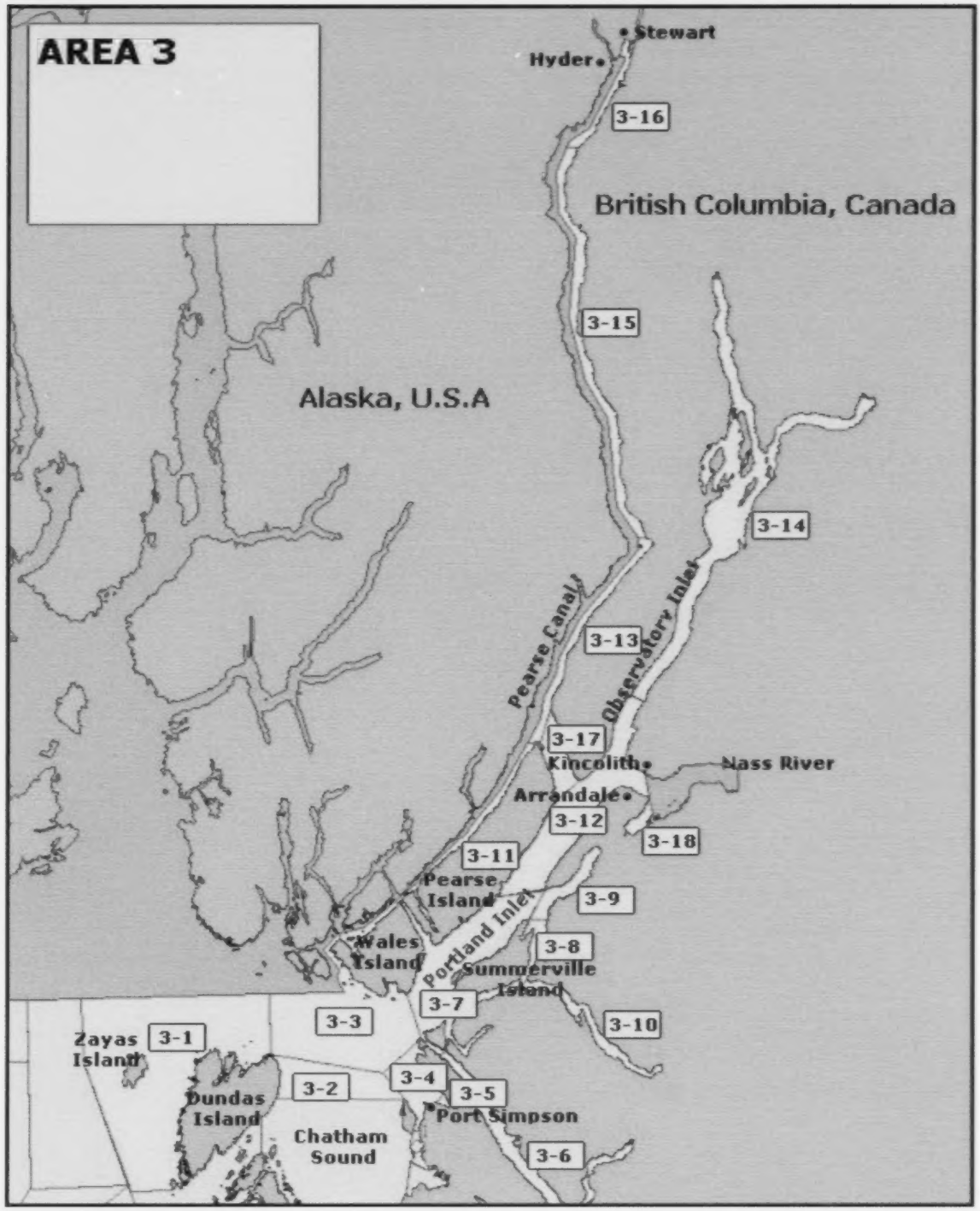
Figure 5. Weekly catch estimates for the Tree Point fishery, by stock and reconstruction method for 2000-2001.

APPENDICES

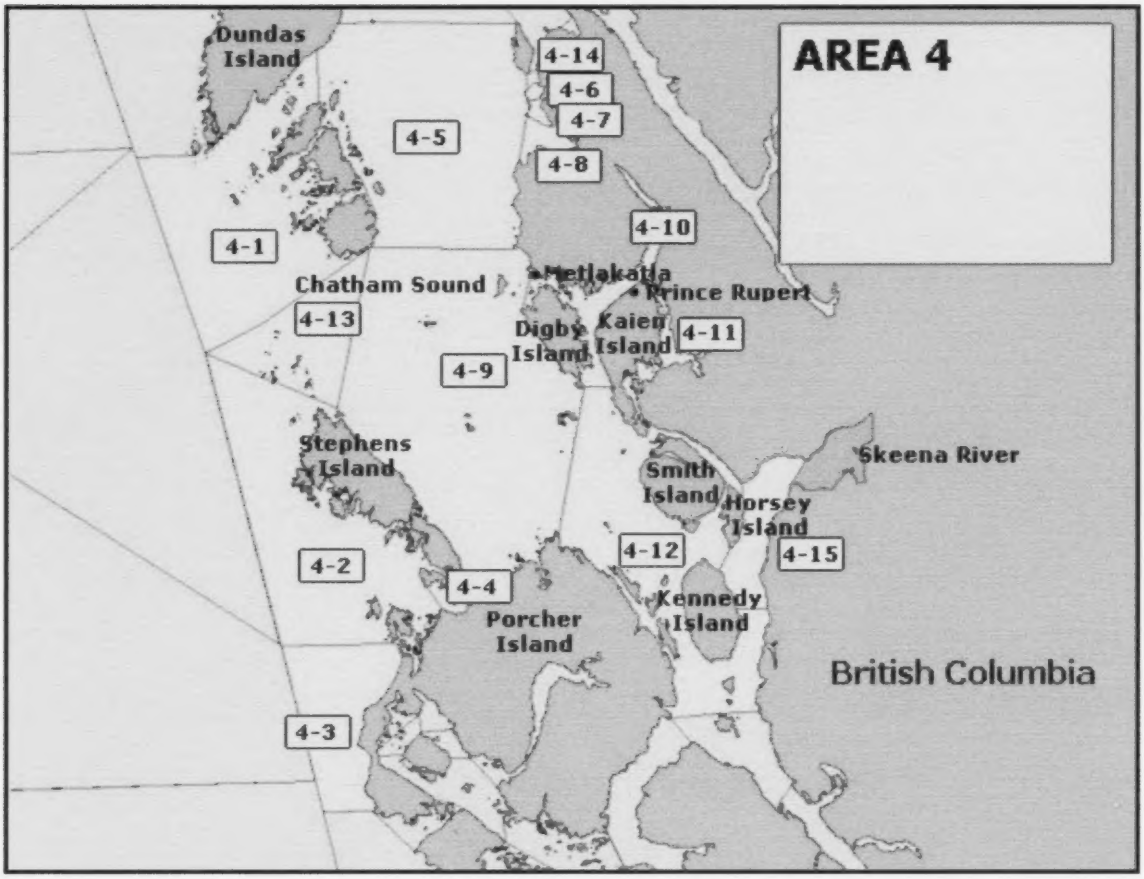
Appendix A. Canadian Department of Fisheries and Oceans, Statistical Area 1 map.



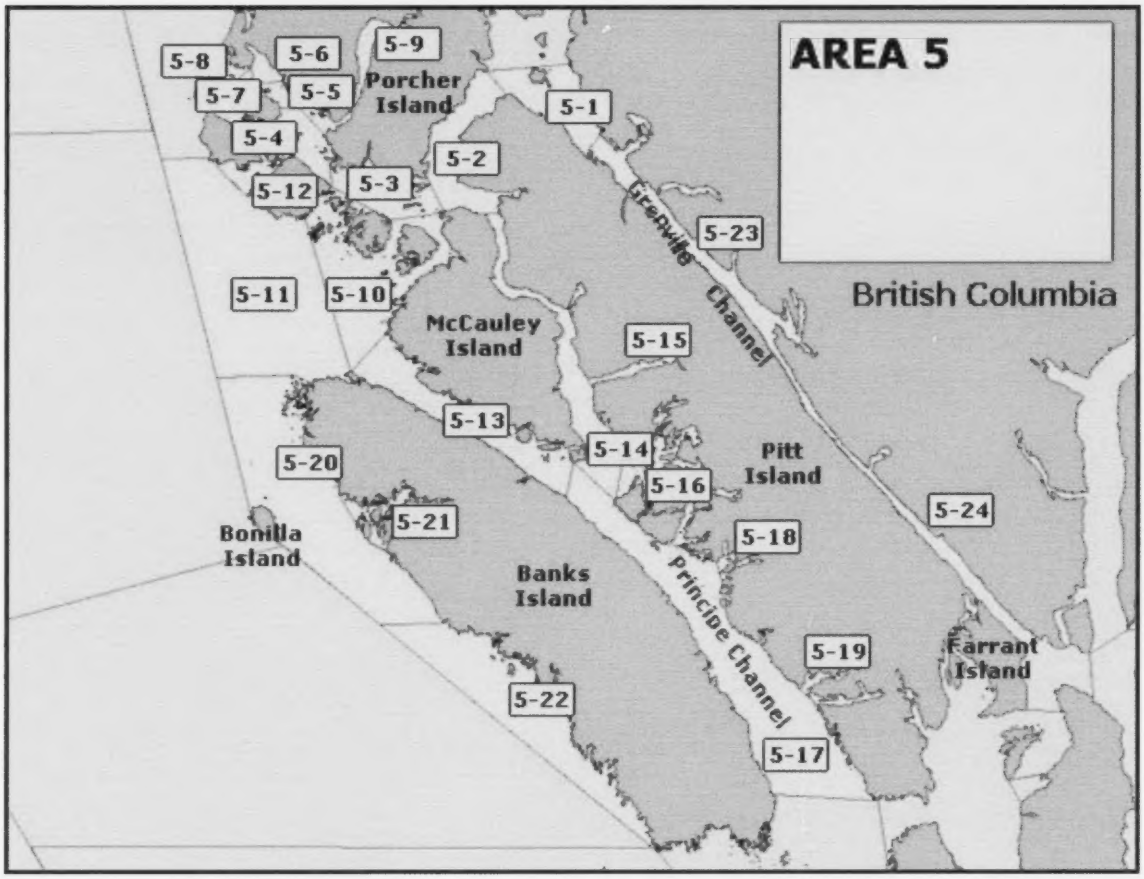
Appendix A. Canadian Department of Fisheries and Oceans, Statistical Area 3 map.



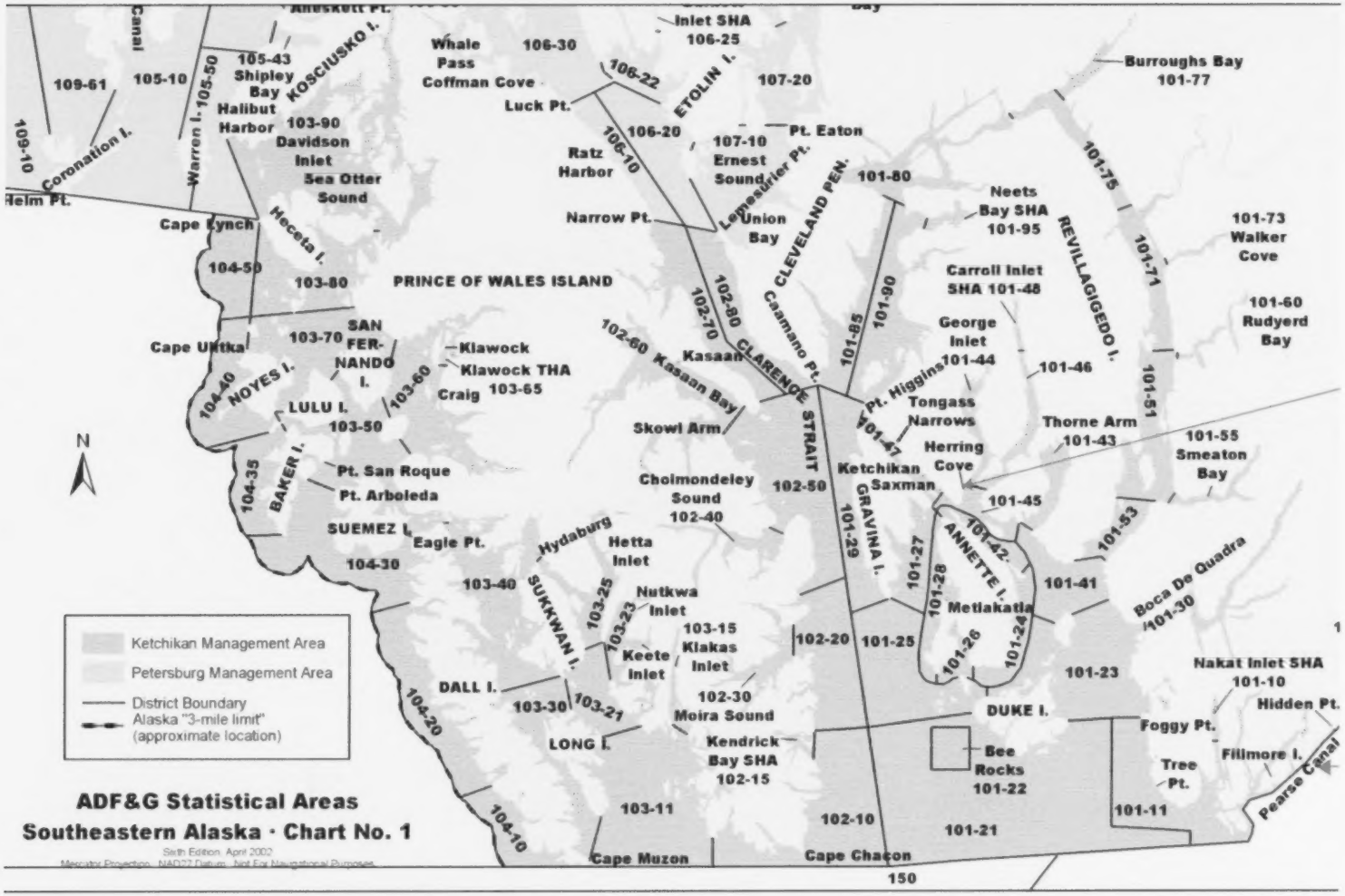
Appendix A. Canadian Department of Fisheries and Oceans, Statistical Area 4 map.



Appendix A. Canadian Department of Fisheries and Oceans, Statistical Area 5 map.



Appendix A. Southern Alaska fisheries districts and sub-district boundaries (southern section).



Appendix A. Southern Alaska fisheries districts and sub-district boundaries (northern section).

Appendix B1. Sockeye migration route parameters for set A.

Name	Code	Resid.	Name	Code	Resid.	Name	Code	Resid.	Name	Code	Resid.
Term108	33	1	4Y	12	1	3A	5	1	Sumner	23	2
Term103	31	1	4X	11	1	Tree	29	1	Cordova	22	1
Term101	30	2	4W	10	1	L.Clar	26	2	Dall	21	2
Union	28	1	3E	9	1	1TS	3	3	Noyes	20	2
Revilla	27	2	3D	8	1	1N	1	1	Dist105	32	1
Area 5	14	1	3C	7	1	M.Clar	25	2	Refuge	15	1
4Z	13	2	3B	6	2	U.Clar	24	2			

Migration routes through the fisheries

	From	To	To	To	To	Prop.	Prop.	Prop.	Prop.
Skeena									
4Z	13	12				1.00			
4Y	12	11				1.00			
4X	11	10	14			0.85	0.15		
4W	10	7	6	5	15	0.10	0.10	0.50	0.30
Area 5	14	3				1.00			
3A	5	3	26			0.90	0.10		
3B	6	5	29			0.93	0.08		
3C	7	6				1.00			
Tree	29	26	27			0.50	0.50		
Revilla	27	26				1.00			
L.Clar	26	3	22	25		0.10	0.77	0.13	
1TS	3	21	1			0.50	0.50		
Cordova	22	21				1.00			
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Nass									
3E	9	8				1.00			
3D	8	7				1.00			
3C	7	6				1.00			
3B	6	29	5	10		0.21	0.25	0.54	
4W	10	11	5			0.80	0.20		
4X	11	14	15			0.95	0.05		
Area 5	14	3				1.00			
3A	5	3	26			0.05	0.95		
Tree	29	26	27	15		0.20	0.10	0.70	
Revilla	27	25				1.00			
L.Clar	26	22	25			0.84	0.16		
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21				1.00			
Dall	21	20				1.00			
1TS	3	21	1			0.18	0.82		

	From	To	To	To	To	Prop.	Prop.	Prop.	Prop.
Stikine									
Term108	33	24	23			0.20	0.80		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
MacD									
Term101	30	26	27			0.80	0.20		
Revilla	27	29	26			0.50	0.50		
L.Clar	26	25	22	29		0.42	0.55	0.03	
Tree	29	5	6			0.20	0.80		
3B	6	5				1.00			
3A	5	3				1.00			
1TS	3	1				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
US_Oth									
Stock	99	27	25	28	31	0.10	0.48	0.40	0.02
Union	28	24				1.00			
Revilla	27	26	29			0.85	0.15		
L.Clar	26	22				1.00			
M.Clar	25	26	24			0.75	0.25		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
Tree	29	5	6	26		0.05	0.20	0.75	
3B	6	5	10			0.10	0.90		
4W	10	5	11			0.10	0.90		
4X	11	14				1.00			
3X	5	3				1.00			
1TS	3	1				1.00			

Appendix B2. Sockeye migration route parameters for set B.

Name	Code	Resid	Name	Code	Resid	Name	Code	Resid	Name	Code	Resid
Term108	33	1	4Y	12	1	3A	5	1	Sumner	23	2
Term103	31	1	4X	11	1	Tree	29	1	Cordova	22	1
Term101	30	2	4W	10	1	L Clar	26	2	Dall	21	2
Union	28	1	3E	9	1	1TS	3	3	Noyes	20	2
Revilla	27	2	3D	8	1	1N	1	1	Dist105	32	1
Area 5	14	1	3C	7	1	M Clar	25	2	Refuge	15	1
4Z	13	2	3B	6	2	U Clar	24	2			

Migration routes through the fisheries

	From	To	To	To	To	Prop	Prop	Prop	Prop
Skeena									
4Z	13	12				1.00			
4Y	12	11				1.00			
4X	11	10	14			0.85	0.15		
4W	10	7	6	5		0.10	0.30	0.60	
Area 5	14	3				1.00			
3A	5	3	26			0.90	0.10		
3B	6	5	29			0.79	0.21		
3C	7	6				1.00			
Tree	29	26	27	15		0.20	0.10	0.70	
Revilla	27	26				1.00			
L Clar	26	3	22	25		0.10	0.77	0.13	
1TS	3	21	1			0.50	0.50		
Cordova	22	21				1.00			
Dall	21	20				1.00			
M Clar	25	24				1.00			
U Clar	24	23				1.00			
Sumner	23	32				1.00			
Nass									
3E	9	8				1.00			
3D	8	7				1.00			
3C	7	6				1.00			
3B	6	29	5	10		0.30	0.25	0.45	
4W	10	11	5			0.80	0.20		
4X	11	14	15			0.95	0.05		
Area 5	14	3				1.00			
3A	5	3	26			0.05	0.95		
Tree	29	26	27	15		0.20	0.10	0.70	
Revilla	27	25				1.00			
L Clar	26	22	25			0.84	0.16		
M Clar	25	24				1.00			
U Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21				1.00			
Dall	21	20				1.00			
1TS	3	21	1			0.18	0.82		

	From	To	To	To	To	Prop	Prop	Prop	Prop
Stikine									
Term108	33	24	23			0.20	0.80		
U Clar	24	23				1.00			
Sumner	23	32				1.00			
MacD									
Term101	30	26	27			0.80	0.20		
Revilla	27	29	26			0.50	0.50		
L Clar	26	25	22	29		0.42	0.55	0.03	
Tree	29	5	6			0.20	0.80		
3B	6	5				1.00			
3A	5	3				1.00			
1TS	3	1				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
M Clar	25	24				1.00			
U Clar	24	23				1.00			
Sumner	23	32				1.00			
US_Oth									
Stock	99	27	25	28	31	0.10	0.48	0.40	0.02
Union	28	24				1.00			
Revilla	27	26	29			0.85	0.15		
L Clar	26	22				1.00			
M Clar	25	26	24			0.75	0.25		
U Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
Tree	29	5	6	26		0.05	0.20	0.75	
3B	6	5	10			0.10	0.90		
4W	10	5	11			0.10	0.90		
4X	11	14				1.00			
3X	5	3				1.00			
1TS	3	1				1.00			

Appendix B3. Sockeye migration route parameters for set C.

Name	Code	Resid	Name	Code	Resid	Name	Code	Resid	Name	Code	Resid
Term108	33	1	4Y	12	1	3A	5	1	Sumner	23	2
Term103	31	1	4X	11	1	Tree	29	1	Cordova	22	1
Term101	30	2	4W	10	1	L.Clar	26	2	Dall	21	2
Union	28	1	3E	9	1	1TS	3	3	Noyes	20	2
Revilla	27	2	3D	8	1	1N	1	1	Dist105	32	1
Area 5	14	1	3C	7	1	M.Clar	25	2	Refuge	15	1
4Z	13	2	3B	6	2	U.Clar	24	2			

Migration routes through the fisheries

	From	To	To	To	To	Prop	Prop	Prop	Prop
Skeena									
4Z	13	12				1.00			
4Y	12	11				1.00			
4X	11	10	14			0.85	0.15		
4W	10	7	6	5	15	0.10	0.10	0.50	0.30
Area 5	14	3				1.00			
3A	5	3	26			0.50	0.50		
3B	6	5	29			0.90	0.10		
3C	7	6				1.00			
Tree	29	26	27			0.50	0.50		
Revilla	27	26				1.00			
L.Clar	26	3	22	25		0.10	0.77	0.13	
1TS	3	21	1			0.50	0.50		
Cordova	22	21				1.00			
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Nass									
3E	9	8				1.00			
3D	8	7				1.00			
3C	7	6				1.00			
3B	6	29	5	10		0.35	0.25	0.40	
4W	10	11	5			0.80	0.20		
4X	11	14	15			0.95	0.05		
Area 5	14	3				1.00			
3A	5	3	26			0.05	0.95		
Tree	29	26	27			0.50	0.50		
Revilla	27	26				1.00			
L.Clar	26	22	25			0.84	0.16		
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21				1.00			
Dall	21	20				1.00			
1TS	3	21	1			0.18	0.82		

	From	To	To	To	To	Prop	Prop	Prop	Prop
Stikine									
Term108	33	24	23			0.20	0.80		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
MacD									
Term101	30	26	27			0.80	0.20		
Revilla	27	29	26			0.50	0.50		
L.Clar	26	25	22	29		0.42	0.55	0.03	
Tree	29	5	6			0.20	0.80		
3B	6	5				1.00			
3A	5	3				1.00			
1TS	3	1				1.00			
Cordova	22	21	15			0.50	0.50		
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
US_Oth									
Stock	99	27	25	28	31	0.10	0.48	0.40	0.02
Union	28	24				1.00			
Revilla	27	26	29			0.65	0.35		
L.Clar	26	22				1.00			
M.Clar	25	26	24			0.75	0.25		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21	15			0.50	0.50		
Dall	21	20				1.00			
Tree	29	5	6	26		0.05	0.20	0.75	
3B	6	5	10			0.10	0.90		
4W	10	5	11			0.10	0.90		
4X	11	14				1.00			
3X	5	3				1.00			
1TS	3	1				1.00			

Appendix B4. Sockeye migration route parameters for set D.

Name	Code	Resid	Name	Code	Resid	Name	Code	Resid	Name	Code	Resid
Term108	33	1	4Y	12	1	3A	5	1	Sumner	23	2
Term103	31	1	4X	11	1	Tree	29	1	Cordova	22	1
Term101	30	2	4W	10	1	L.Clar	26	2	Dall	21	2
Union	28	1	3E	9	1	1TS	3	3	Noyes	20	2
Revilla	27	2	3D	8	1	1N	1	1	Dist105	32	1
Area 5	14	1	3C	7	1	M.Clar	25	2	Refuge	15	1
4Z	13	2	3B	6	2	U.Clar	24	2			

Migration routes through the fisheries

	From	To	To	To	To	Prop	Prop	Prop	Prop
Skeena									
4Z	13	12				1.00			
4Y	12	11				1.00			
4X	11	10	14			0.85	0.15		
4W	10	7	6	5	15	0.10	0.10	0.55	0.25
Area 5	14	3				1.00			
3A	5	3	26			0.50	0.50		
3B	6	5	29			0.84	0.16		
3C	7	6				1.00			
Tree	29	26	27			0.50	0.50		
Revilla	27	26				1.00			
L.Clar	26	3	22	25		0.10	0.77	0.13	
1TS	3	21	1			0.50	0.50		
Cordova	22	21				1.00			
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Nass									
3E	9	8				1.00			
3D	8	7				1.00			
3C	7	6				1.00			
3B	6	29	5	10		0.45	0.25	0.30	
4W	10	11	5			0.80	0.20		
4X	11	14	15			0.95	0.05		
Area 5	14	3				1.00			
3A	5	3	26			0.05	0.95		
Tree	29	26	27	15		0.20	0.10	0.70	
Revilla	27	26				1.00			
L.Clar	26	22	25			0.84	0.16		
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21				1.00			
Dall	21	20				1.00			
1TS	3	21	1			0.18	0.82		

	From	To	To	To	To	Prop	Prop	Prop	Prop
Stikine									
Term108	33	24	23			0.20	0.80		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
MacD									
Term101	30	26	27			0.80	0.20		
Revilla	27	29	26			0.50	0.50		
L.Clar	26	25	22	29		0.42	0.55	0.03	
Tree	29	5	6			0.20	0.80		
3B	6	5				1.00			
3A	5	3				1.00			
1TS	3	1				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
US_Oth									
Stock	99	27	25	28	31	0.10	0.48	0.40	0.02
Union	28	24				1.00			
Revilla	27	26	29			0.65	0.35		
L.Clar	26	22				1.00			
M.Clar	25	26	24			0.75	0.25		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
Tree	29	5	6	26		0.05	0.20	0.75	
3B	6	5	10			0.10	0.90		
4W	10	5	11			0.10	0.90		
4X	11	14				1.00			
3X	5	3				1.00			
1TS	3	1				1.00			

Appendix B5. Sockeye migration route parameters for set E.

Name	Code	Resid	Name	Code	Resid	Name	Code	Resid	0	Name	Code	Resid
Term108	33	1	4Y	12	1	3A	5	1	0	Sumner	23	2
Term103	31	1	4X	11	1	Tree	29	1	0	Cordova	22	1
Term101	30	2	4W	10	1	L.Clar	26	2	0	Dall	21	2
Union	28	1	3E	9	1	1TS	3	3	0	Noyes	20	2
Revilla	27	2	3D	8	1	1N	1	1	0	Dist105	32	1
Area 5	14	1	3C	7	1	M.Clar	25	2	0	Refuge	15	1
4Z	13	2	3B	6	2	U.Clar	24	2	0			

Migration routes through the fisheries

	From	To	To	To	To	Prop	Prop	Prop	Prop
Skeena									
4Z	13	12				1.00			
4Y	12	11				1.00			
4X	11	10	14			0.85	0.15		
4W	10	7	6	5	15	0.10	0.10	0.50	0.30
Area 5	14	3				1.00			
3A	5	3	26			0.97	0.03		
3B	6	5	29			0.97	0.03		
3C	7	6				1.00			
Tree	29	26	27			0.50	0.50		
Revilla	27	26				1.00			
L.Clar	26	3	22	25		0.10	0.77	0.13	
1TS	3	21	1			0.50	0.50		
Cordova	22	21				1.00			
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Nass									
3E	9	8				1.00			
3D	8	7				1.00			
3C	7	6				1.00			
3B	6	29	5	10		0.18	0.28	0.54	
4W	10	11	5			0.80	0.20		
4X	11	14	15			0.95	0.05		
Area 5	14	3				1.00			
3A	5	3	26			0.40	0.60		
Tree	29	26	27	15		0.20	0.10	0.70	
Revilla	27	26				1.00			
L.Clar	26	22	25			0.84	0.16		
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21				1.00			
Dall	21	20				1.00			
1TS	3	21	1			0.18	0.82		

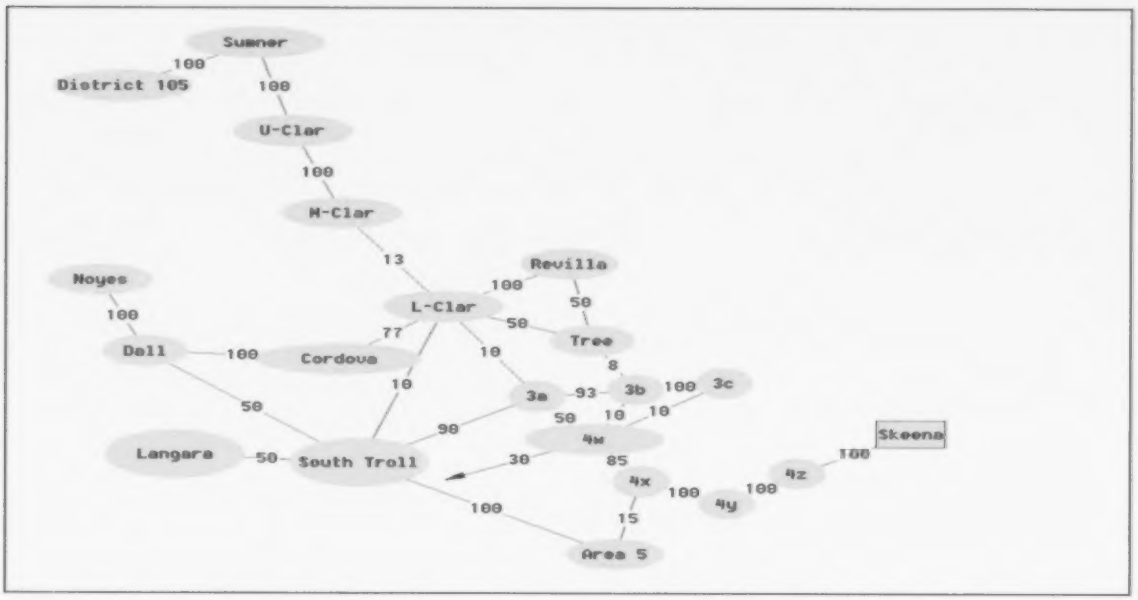
	From	To	To	To	To	Prop	Prop	Prop	Prop
Stikine									
Term108	33	24	23			0.20	0.80		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
MacD									
Term101	30	26	27			0.80	0.20		
Revilla	27	29	26			0.50	0.50		
L.Clar	26	25	22	29		0.42	0.55	0.03	
Tree	29	5	6			0.20	0.80		
3B	6	5				1.00			
3A	5	3				1.00			
1TS	3	1				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
M.Clar	25	24				1.00			
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
US_Oth									
Stock	99	27	25	28	31	0.10	0.48	0.40	0.02
Union	28	24				1.00			
Revilla	27	26	29			0.85	0.15		
L.Clar	26	22				1.00			
M.Clar	25	26	24			0.75	0.25		
U.Clar	24	23				1.00			
Sumner	23	32				1.00			
Cordova	22	21	15			0.70	0.30		
Dall	21	20				1.00			
Tree	29	5	6	26		0.05	0.20	0.75	
3B	6	5	10			0.10	0.90		
4W	10	5	11			0.10	0.90		
4X	11	14				1.00			
3X	5	3				1.00			
1TS	3	1				1.00			

Appendix C.

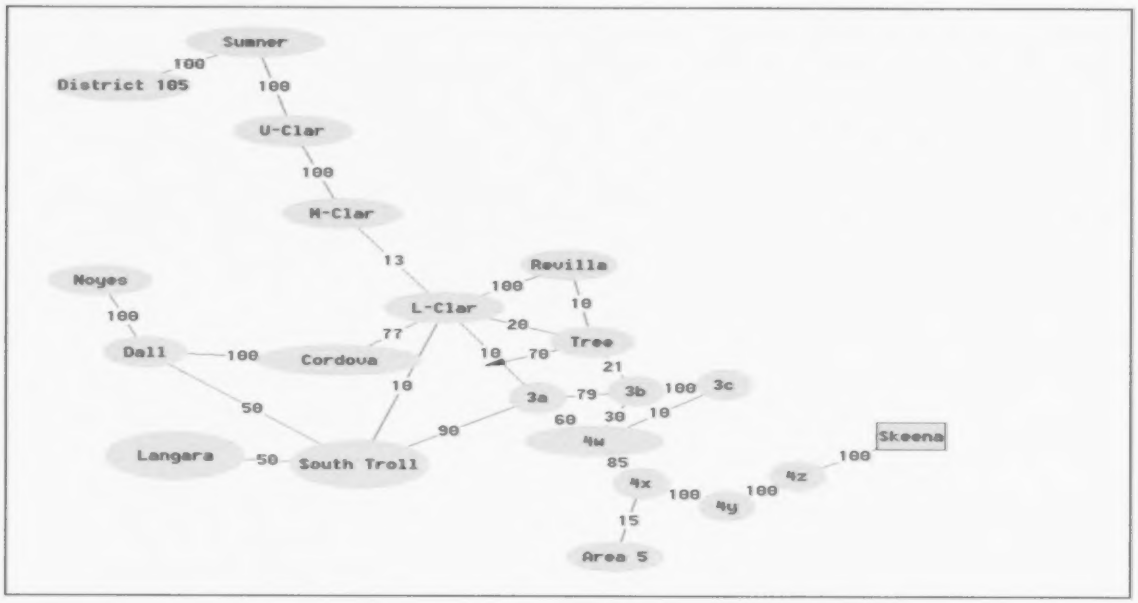
Migration route diagrams used for the run reconstructions, 1982-2001.

The migration routes diagrams are provided to display the parameters that define the migration patterns for each stock and period. The migration parameters are constructed by working backwards through the fisheries from the river mouth to the first interception fisheries. For example: the first figure defines the Skeena sockeye migration routes for Routing A (next page). Here 100% of the fish move through the Area 4X, 4Y and 4Z fisheries. Outside these terminal fisheries, the run divides into sub-stocks, with 85% migrating through Area 4W and 15% through Area 5. Of the fish that migrate through Area 4W, 50% migrated through the Area 3A fishery, 10% through Area 3B, 10% through Area 3C and 30% are not vulnerable to any interception fishery. This process is repeated until each fishery intercepting Skeena sockeye has been linked to the terminal fisheries for that stock. The numbers on each migration path indicates the percentage of the fish in a specific fishery that migrated through the adjacent fisheries and these numbers must sum up to 100% for the migration routes entering each fishery. The resulting portions of the total Skeena stock that migrate through each fishery are presented in Table 8 along with the proportions for the other sockeye stocks.

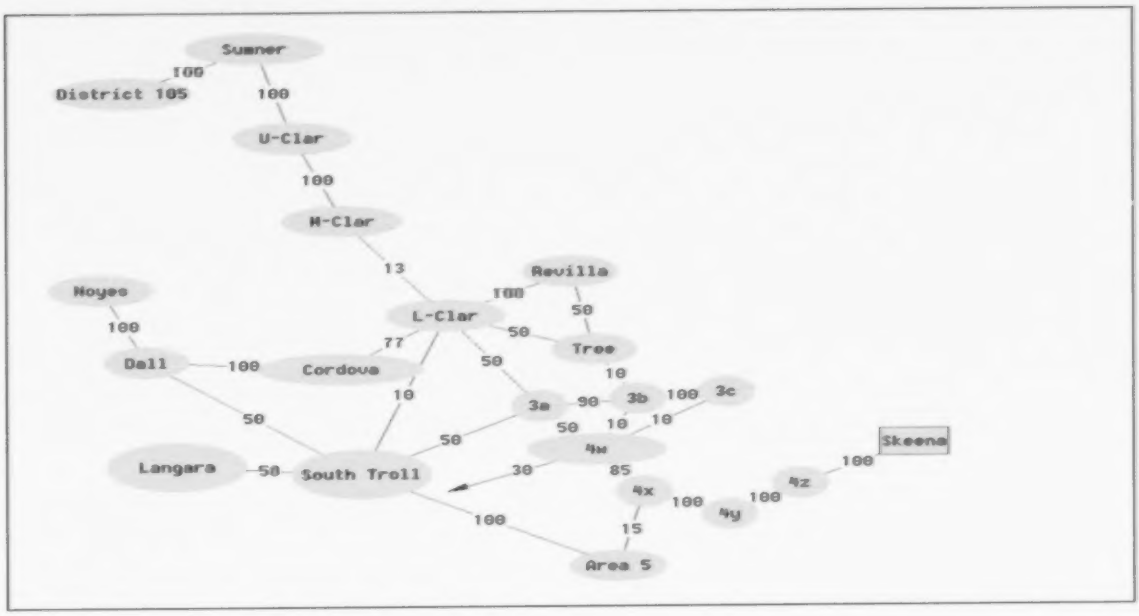
Appendix C. Skeena migration route A.



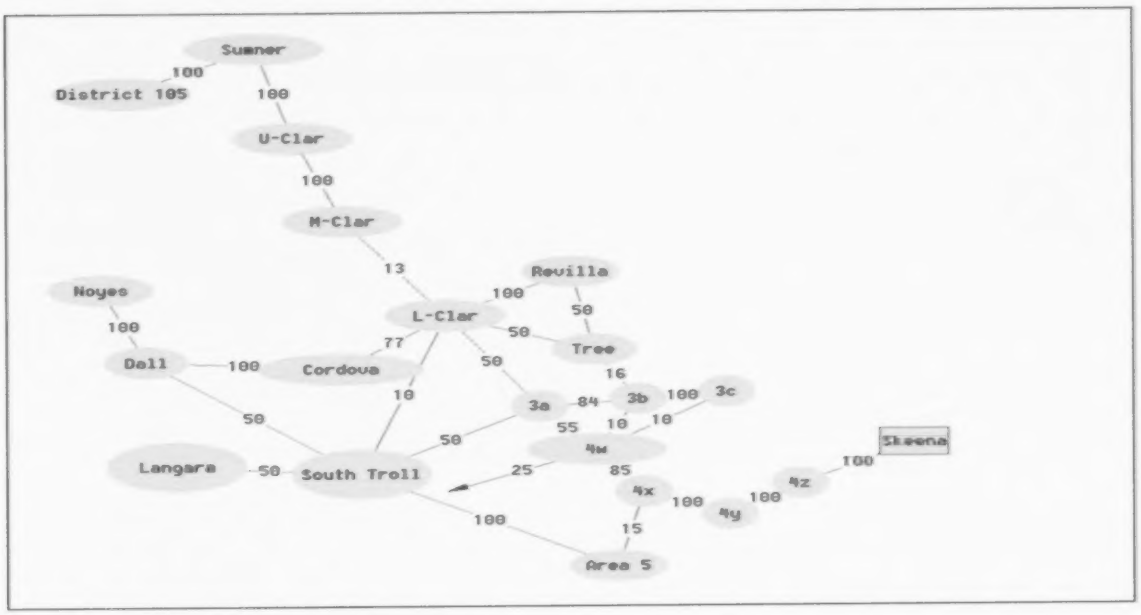
Appendix C. Skeena migration route B.



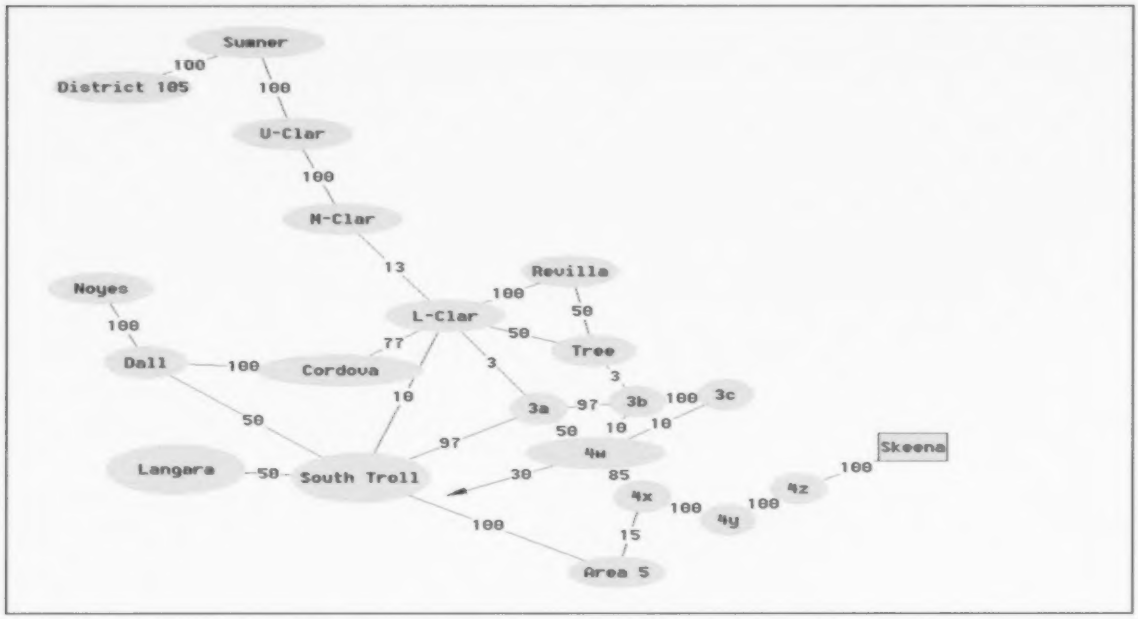
Appendix C. Skeena migration route C.



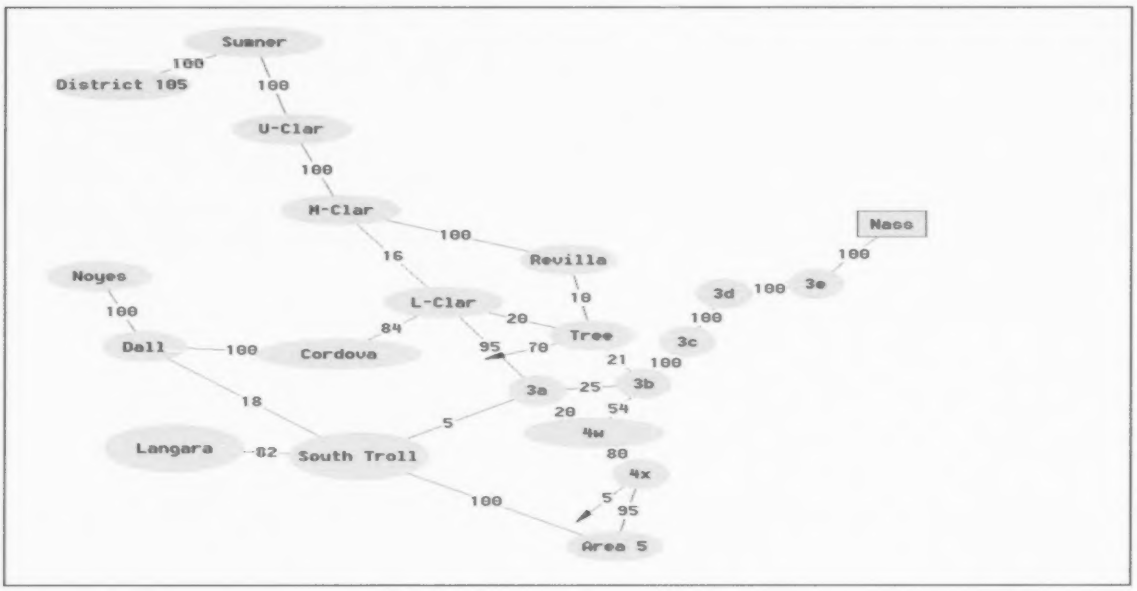
Appendix C. Skeena migration route D.



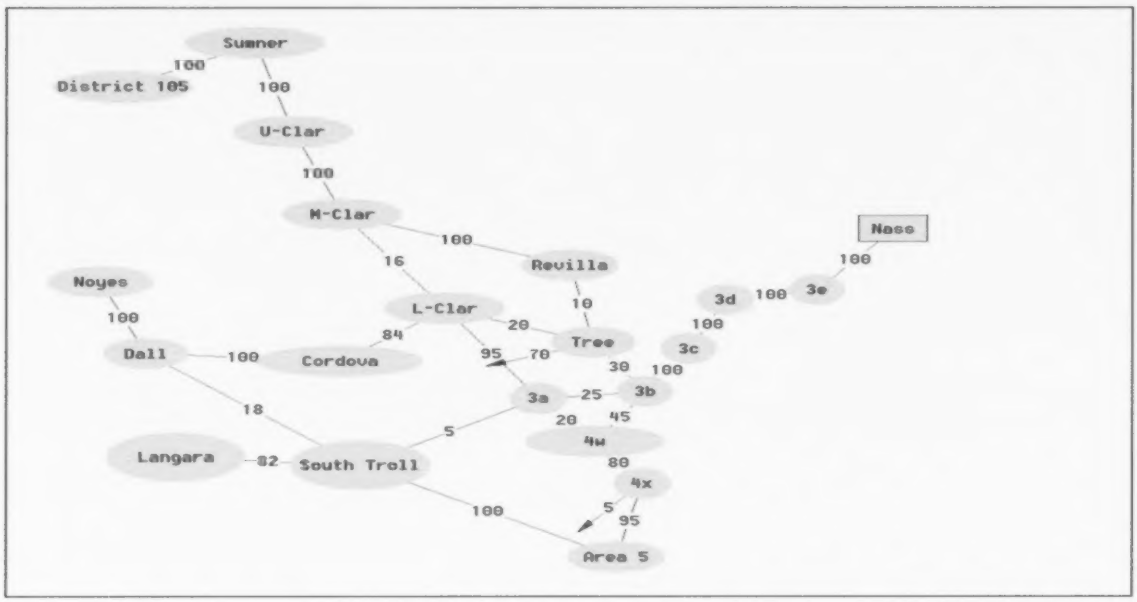
Appendix C. Skeena migration route E.



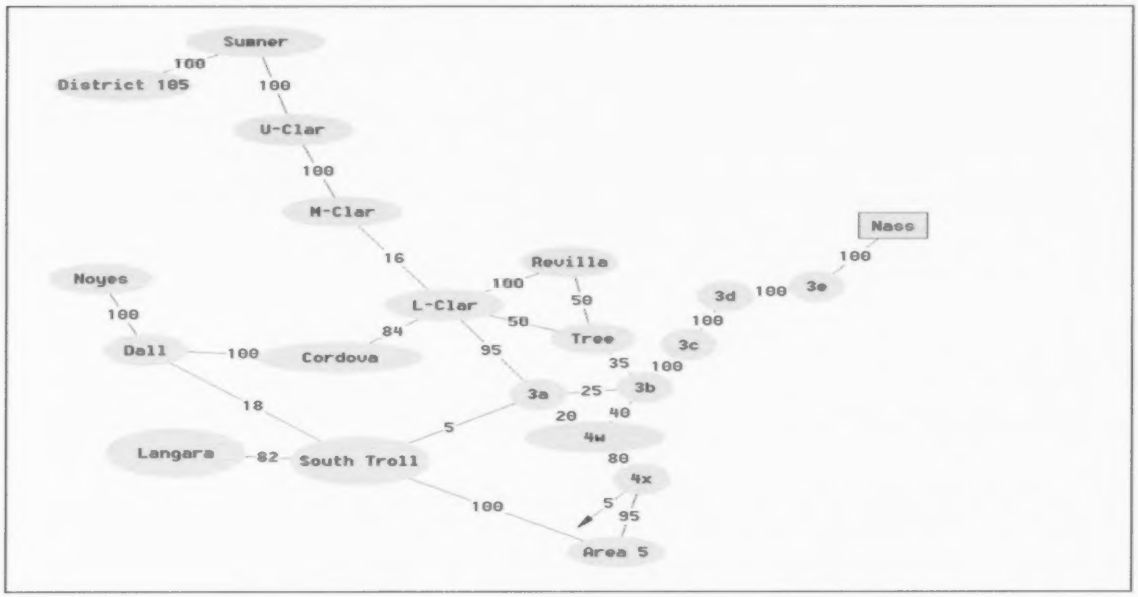
Appendix C. Nass migration route A.



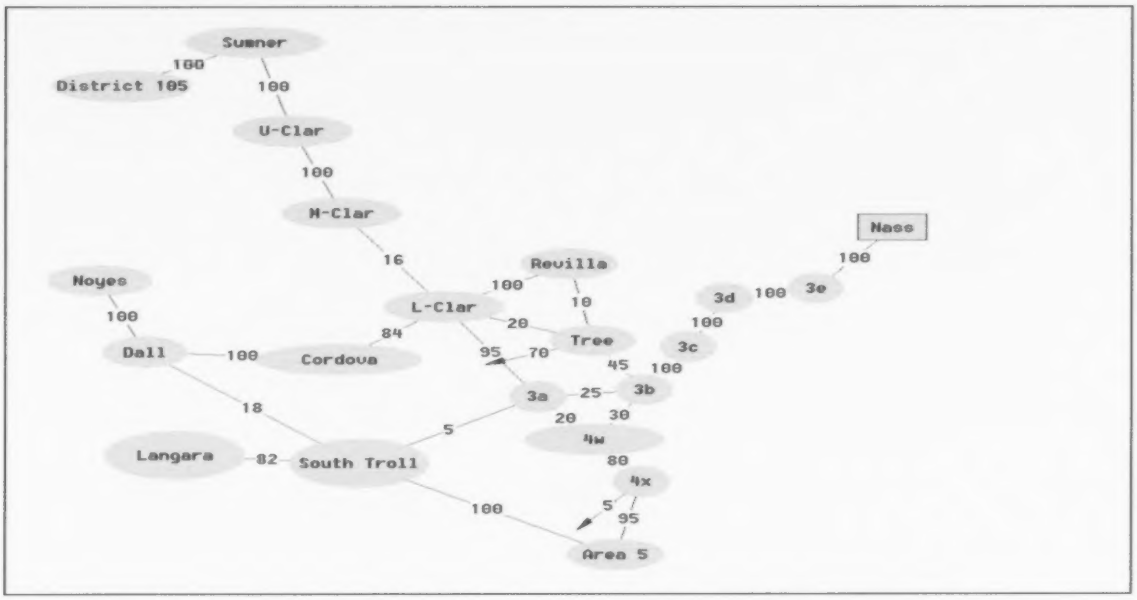
Appendix C. Nass migration route B.



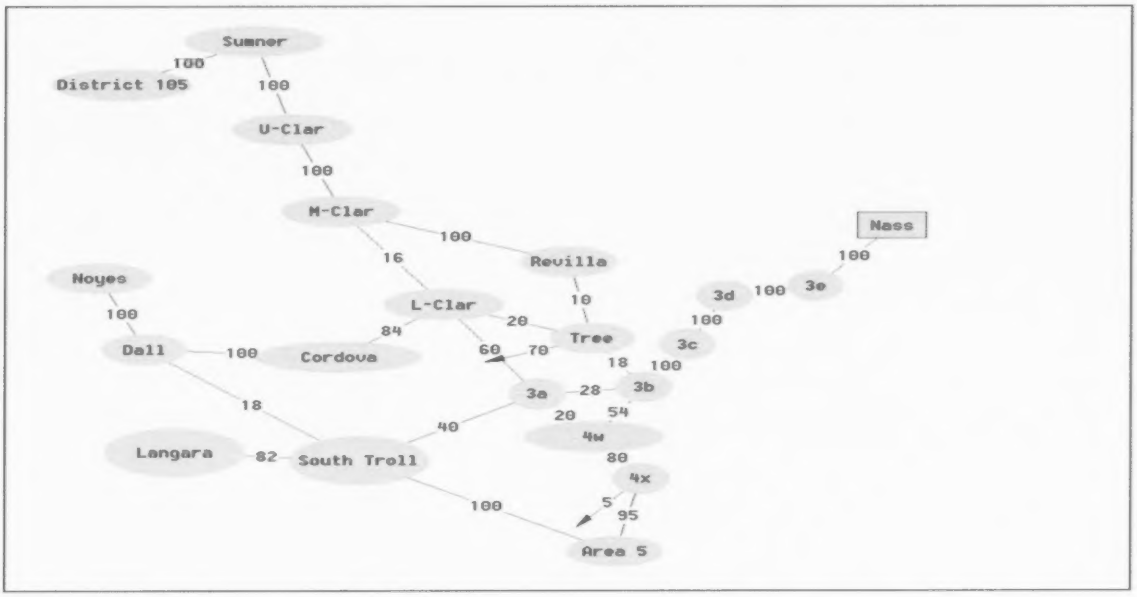
Appendix C. Nass migration route C.



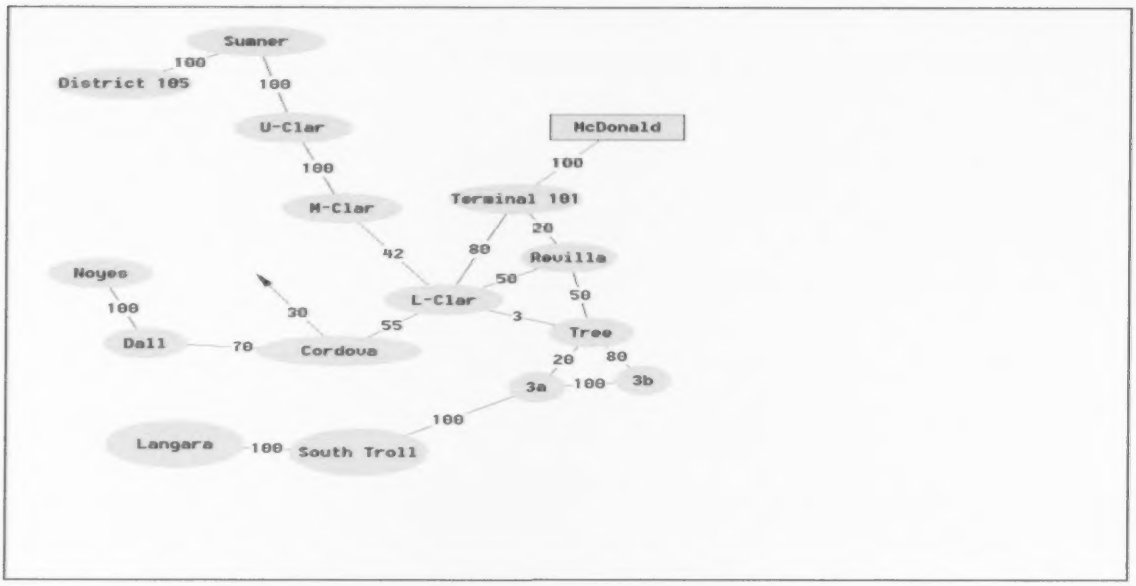
Appendix C. Nass migration route D.



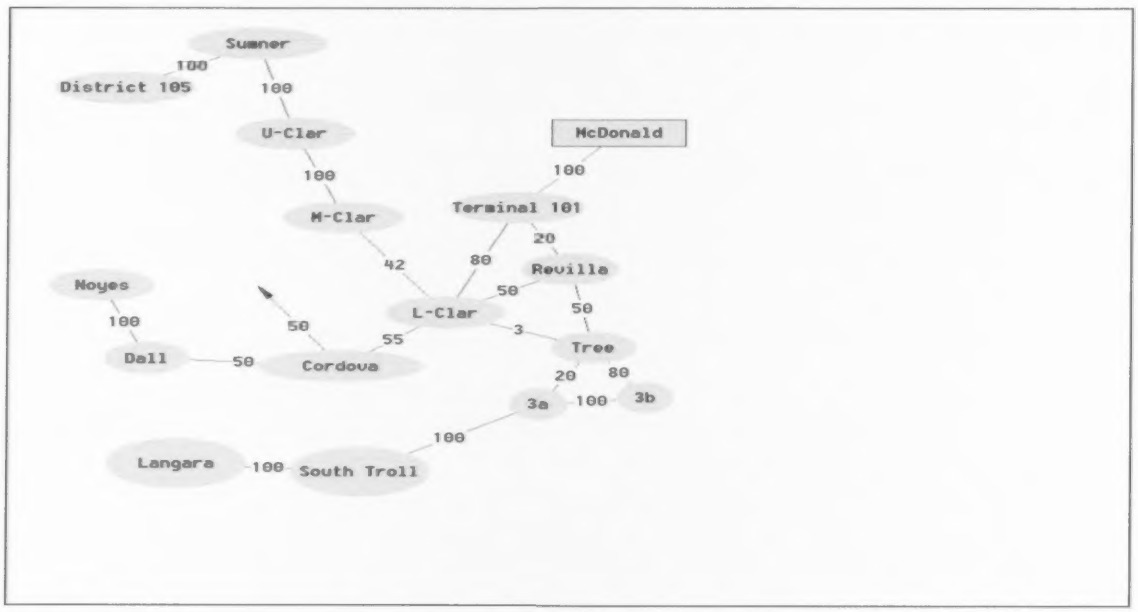
Appendix C. Nass migration route E.



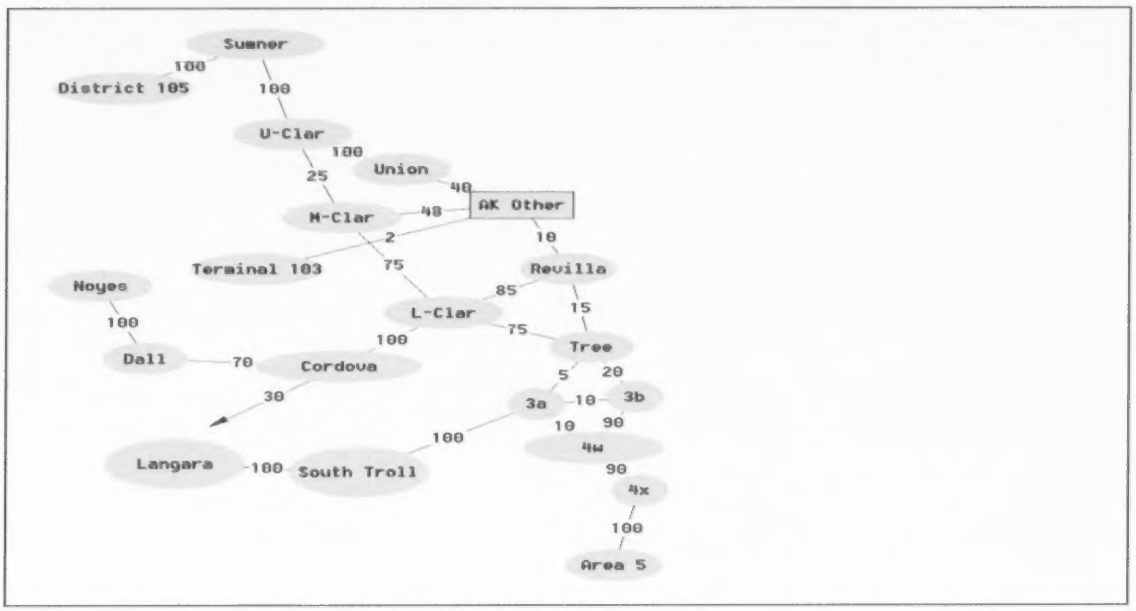
Appendix C. US_McDonald migration routes A, B, D and E.



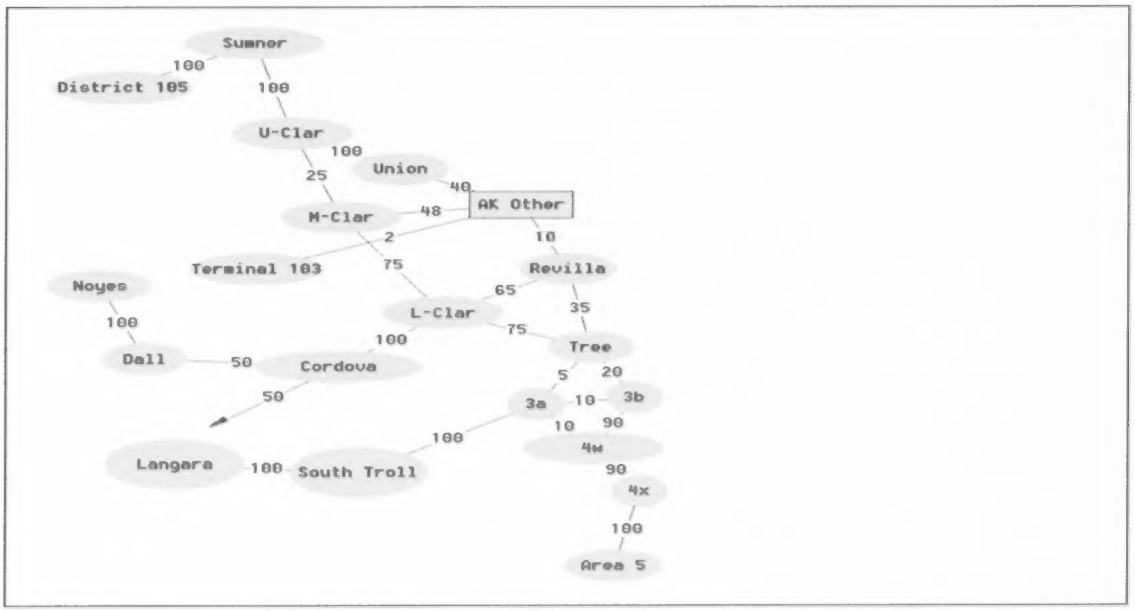
Appendix C. US_McDonald migration route C.



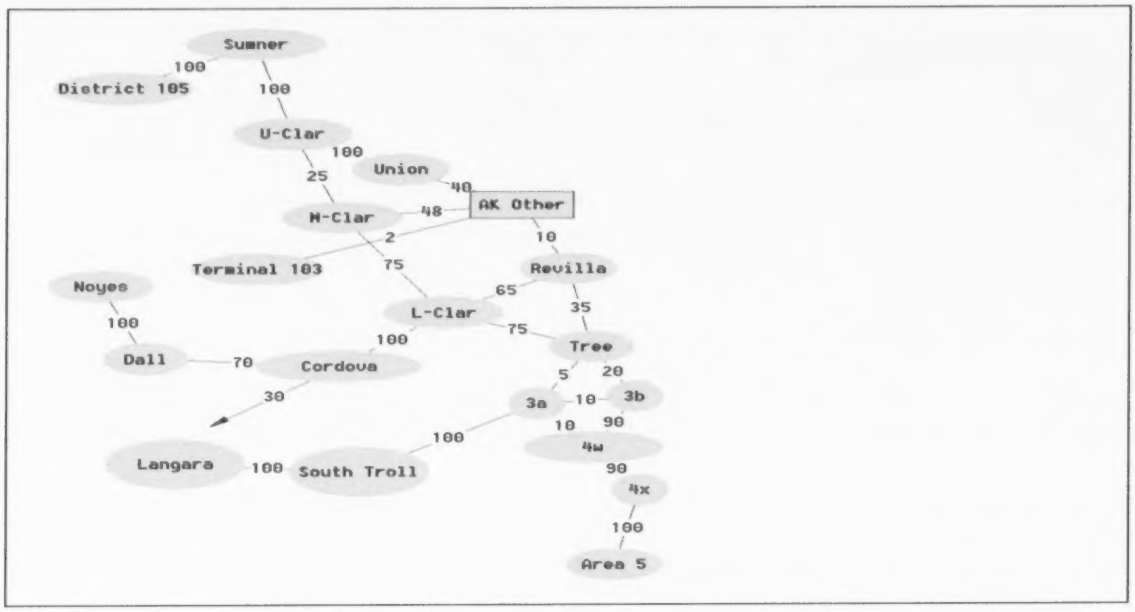
Appendix C. US_Other migration routes A, B and E.



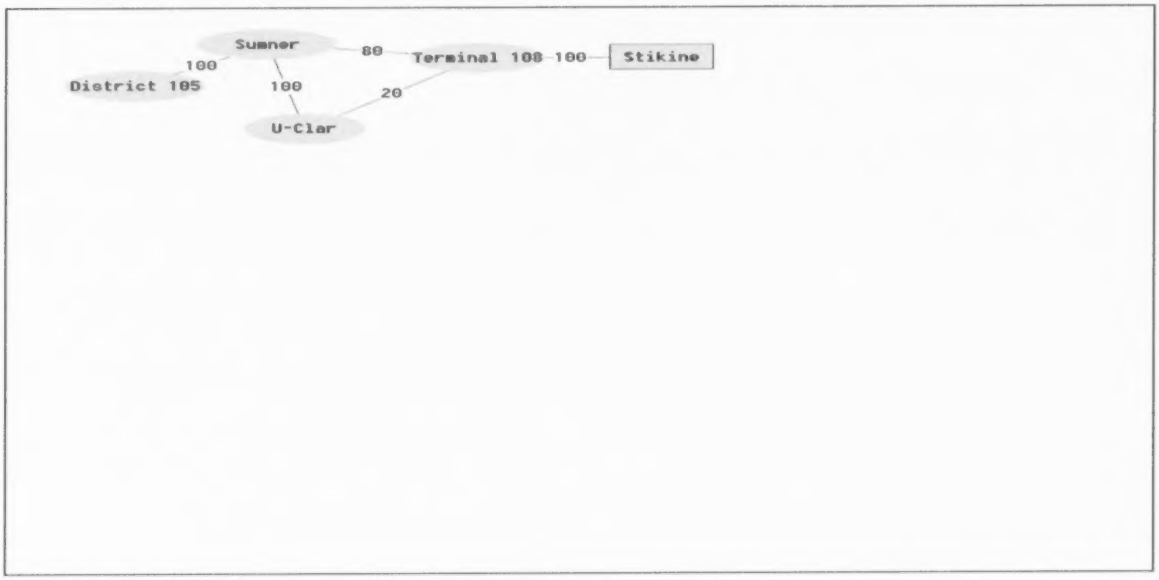
Appendix C. US_Other migration route C.



Appendix C. US_Other migration route D.



Appendix C. Stikine migration route, all years.



Appendix D.1 1982 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	43921	5430	0	1553	67	7741	58712	42288	5246	0	1238	2234	7706	58712
1Troll	1393	130	0	84	3	2239	3849	1238	175	0	71	91	2274	3849
3A	283214	19937	0	12541	566	0	316258	244173	39182	0	9701	18505	0	311561
3B	75456	39696	0	5865	783	0	121801	59954	48880	0	9914	10944	0	129691
3C	3693	7894	0	0	0	0	11587	2934	9720	0	0	0	0	12655
3D	0	197854	0	0	0	0	197854	0	192373	0	0	0	0	192373
3E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4W	761257	59511	0	0	1292	0	822059	669620	100961	0	0	17931	0	788512
4X	294589	35027	0	0	1017	0	330632	287787	48504	0	0	1191	0	337482
4Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4Z	539230	0	0	0	0	0	539230	496593	0	0	0	0	0	496593
Area 5	46980	24528	0	0	923	0	72431	65103	4279	0	0	807	0	70189
Noyes	105261	14548	0	11199	60889	0	191898	104848	12407	0	12305	59447	0	189007
Dall	50559	5944	0	6254	28705	0	91462	49740	6569	0	3429	31435	0	91173
Cordova	42	52	0	77	601	0	771	53	0	0	308	138	0	499
Summer	15499	24216	22190	2597	57058	0	121559	29770	9891	20783	7841	51804	0	120089
U-Clar	11008	11062	15300	4171	30686	0	72227	18242	3785	14448	4387	30429	0	71291
M-Clar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L-Clar	29036	21841	0	12706	40610	0	104192	21377	4839	0	9228	24016	0	59460
Revilla	10473	4798	0	4720	14526	0	34516	0	0	0	0	29065	0	29065
Union	0	0	0	0	305	0	305	0	0	0	0	0	0	0
Tree	46001	75409	0	24111	45271	0	190792	74276	46833	0	15758	53588	0	190455
Term101	0	0	0	629	0	0	629	0	0	0	792	0	0	792
Term103	0	0	0	0	122	0	122	0	0	0	0	0	0	0
Dist105	0	0	0	0	43	0	43	0	0	0	0	0	0	0
Term108	0	0	7127	0	0	0	7127	0	0	6746	0	0	0	6746
Total Catch	2317608	547877	44617	86506	283467	9980	3290056	2167996	533645	41977	74971	331624	9980	3160193
Escapement	1447331	372880	68761	49716	292283	0	2230971	1302823	340120	68761	56945	297055	0	2065704
Total Run	3764939	920757	113378	136222	575750	9980	5511047	3470819	873765	110738	131916	628679	9980	5215917
Expl Rate	61.56	59.5	39.35	63.5	49.23	0	59.52	62.5	61.1	37.9	56.8	52.8	0.0	60.4

Appendix D.2 1983 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	15178	3278	0	2102	67	11803	32428	14495	3870	0	1023	453	12588	32429
1Troll	1782	248	0	100	86	1641	3857	1645	241	0	344	18	1609	3857
3A	91196	9637	0	4586	134	0	105553	80681	13427	0	1055	771	0	95934
3B	93875	69602	0	11423	926	0	175826	103032	62982	0	5135	11748	0	182898
3C	60431	62072	0	0	0	0	122503	66326	56169	0	0	0	0	122494
3D	0	47097	0	0	0	0	47097	0	44555	0	0	0	0	44555
3E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4W	101553	13074	0	0	490	0	115117	88805	23461	0	0	3058	0	115324
4X	44362	3808	0	0	172	0	48342	45335	3436	0	0	498	0	49269
4Y	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4Z	121527	0	0	0	0	0	121527	119386	0	0	0	0	0	119386
Area 5	10028	4188	0	0	146	0	14361	11178	2741	0	0	439	0	14358
Noyes	205239	54445	0	25824	80681	136324	502514	219374	44056	0	26692	83401	136324	509847
Dall	53821	15640	0	8365	22386	40472	140684	48474	20926	0	4849	26029	40472	140750
Cordova	209	133	0	132	673	0	1147	397	0	0	339	411	0	1147
Sumner	1898	3859	3594	4049	14734	0	28135	3517	2164	3330	3512	15142	0	27665
U-Clar	1689	3664	2200	3576	11756	0	22885	3692	1661	1796	2693	12639	0	22481
M-Clar	607	1201	0	230	2450	0	4487	1867	0	0	1347	1182	0	4396
L-Clar	20602	19907	0	9952	16740	0	67201	16165	5603	0	5279	10342	0	37389
Revilla	6836	3498	0	4009	5066	0	19408	0	0	0	0	16190	0	16190
Union	0	0	0	0	1239	0	1239	0	0	0	0	0	0	0
Tree	21782	65105	0	28934	19953	0	135774	43288	43217	0	8179	40707	0	135391
Term101	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	9308	0	9308	0	0	0	0	0	0	0
Dist105	9	46	57	9	276	0	397	0	0	0	0	0	0	0
Term108	0	0	149	0	0	0	149	0	0	0	0	0	0	0
Total Catch	852624	380500	6000	103293	187283	190240	1719939	867658	328510	5126	60448	223028	190993	1675763
Escapement	1114507	234871	71683	56142	219223	0	1696426	1011521	208999	71683	56142	267858	0	1616203
Total Run	1967131	615371	77683	159435	406506	190240	3226126	1879179	537509	76809	116590	490886	190993	3100973
Expl Rate	43.34	61.83	7.72	64.79	46.07	0	47.42	46.2	61.1	6.7	51.9	45.4	0.0	47.9

Appendix D.3 1984 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	5048	573	0	1099	12	24894	31625	73	30	0	1	1	28393	28498
1Troll	1800	146	0	224	9	15713	17893	27	5	0	6	0	17854	17892
3A	103442	7947	0	6572	75	0	118036	106557	10322	0	2814	762	0	120455
3B	27147	14811	0	5216	296	0	47469	26555	15077	0	2920	2395	0	46947
3C	13424	14562	0	0	0	0	27986	13132	14823	0	0	0	0	27955
3D	0	77677	0	0	0	0	77677	0	74585	0	0	0	0	74585
3E	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4W	179351	22545	0	0	186	0	202082	160917	30707	0	0	2420	0	194044
4X	114294	12187	0	0	119	0	126600	100426	18777	0	0	2501	0	121704
4Y	165017	0	0	0	0	0	165017	157849	0	0	0	0	0	157849
4Z	261296	0	0	0	0	0	261296	262926	0	0	0	0	0	262926
Area 5	28392	6992	0	0	125	0	35509	28724	6072	0	0	647	0	35443
Noyes	92250	25503	0	22012	20773	0	160538	93622	25526	0	13041	30469	0	162658
Dall	77077	21353	0	19027	16170	0	133628	77075	21354	0	10757	24441	0	133627
Cordova	76	70	0	271	724	0	1141	144	0	0	941	55	0	1140
Sumner	2491	5359	734	11568	7674	0	27827	2472	5059	629	3395	15482	0	27037
U-Clar	6581	11557	3201	21176	23309	0	65824	6567	10670	3034	9660	34824	0	64755
M-Clar	285	419	0	231	652	0	1587	704	0	0	704	177	0	1585
L-Clar	23242	24454	0	42994	20818	0	111507	13513	10724	0	15358	22891	0	62486
Revilla	6540	8229	0	16533	6332	0	37633	0	0	0	0	33527	0	33527
Union	0	0	0	0	1043	0	1043	0	0	0	0	0	0	0
Tree	8429	45595	0	25322	8515	0	87862	8364	43989	0	10244	23587	0	86184
Term101	0	0	0	2669	0	0	2669	0	0	0	2507	0	0	2507
Term103	0	0	0	0	2243	0	2243	0	0	0	0	0	0	0
Dist105	1	3	11	8	39	0	62	0	0	0	0	0	0	0
Term108	0	0	1285	0	0	0	1285	0	0	1132	0	0	0	1132
Total Catch	1116183	299981	5231	174922	109116	40607	1746039	1059649	287719	4795	72350	194179	46247	1664939
Escapement	1311575	243051	76211	121224	142454	0	1894515	1220263	220954	76211	124093	420876	0	2062397
Total Run	2427758	543032	81442	296146	251570	40607	3599947	2279912	508673	81006	196443	615055	46247	3681089
Expl Rate	45.98	55.24	6.42	59.07	43.37	0	47.37	46.5	56.6	5.9	36.8	31.6	0.0	44.0

Appendix D.4 1985 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	73004	5700	0	2246	39	36934	117924	63269	6818	0	609	309	38207	109212
1Troll	12645	642	0	264	5	19180	32736	12291	731	0	89	32	19593	32736
3A	214753	12748	0	4835	91	0	232427	219855	12869	0	664	477	0	233865
3B	50672	18443	0	4015	241	0	73371	58238	16133	0	1905	1938	0	78214
3C	24410	14426	0	0	0	0	38836	28054	12620	0	0	0	0	40674
3D	0	13144	0	0	0	0	13144	0	11207	0	0	0	0	11207
3E	0	52080	0	0	0	0	52080	0	44403	0	0	0	0	44403
4W	550255	45023	0	0	455	0	595734	531607	60534	0	0	3982	0	596123
4X	369528	33366	0	0	321	0	403215	371801	34601	0	0	1929	0	408331
4Y	385245	0	0	0	0	0	385245	395308	0	0	0	0	0	395308
4Z	649470	0	0	0	0	0	649470	633901	0	0	0	0	0	633901
Area 5	38615	15684	0	0	206	0	54505	41993	11741	0	0	776	0	54510
Noyes	206953	16708	0	21208	38737	8736	292342	229553	6876	0	23569	40203	8736	308937
Dall	97566	8497	0	11607	20116	1527	139313	93005	12655	0	8802	23001	1527	138990
Cordova	2373	488	0	2110	4697	0	9667	1571	0	0	5017	3020	0	9608
Sumner	41327	27127	20565	26581	56432	0	172033	59240	9216	20293	23457	59556	0	171762
U-Clar	23573	18469	10482	12812	28570	0	93907	34208	6606	9037	11804	31669	0	93324
M-Clar	107	215	0	164	898	0	1384	359	0	0	1180	0	0	1539
L-Clar	45943	22180	0	41576	43853	0	153552	30253	3203	0	28923	27781	0	90160
Revilla	13109	3609	0	17988	15736	0	50442	0	0	0	0	43433	0	43433
Union	0	0	0	0	3	0	3	0	0	0	0	0	0	0
Tree	58768	84212	0	21526	8457	0	172963	95854	46411	0	6327	23509	0	172101
Term101	0	0	0	18261	0	0	18261	0	0	0	18260	0	0	18260
Term103	0	0	0	0	16596	0	16596	0	0	0	0	0	0	0
Dist105	218	126	486	474	912	0	2216	0	0	0	0	0	0	0
Term108	0	0	1049	0	0	0	1049	0	0	551	0	0	0	551
Total Catch	2858537	392887	32583	185668	236363	66377	3772414	2900361	296625	29881	130608	261615	68063	3687153
Escapement	2479035	448416	184747	100792	269497	0	3482487	2354163	398142	184747	120848	396140	0	3454040
Total Run	5337572	841303	217330	286460	505860	66377	7188524	5254524	694767	214628	251456	657755	68063	7073130
Expl Rate	53.56	46.7	14.99	64.81	46.72	0	51.55	55.2	42.7	13.9	51.9	39.8	0.0	51.2

Appendix D.5 1986 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	24315	2853	0	1697	37	4764	33666	22577	3915	0	659	225	4742	32118
1Troll	14481	828	0	549	26	5537	21421	13551	1081	0	1184	46	5559	21421
3A	42485	5590	0	2595	32	0	50703	39167	8057	0	385	295	0	47904
3B	39436	44848	0	6530	280	0	91095	41071	45505	0	3796	2291	0	92664
3C	11615	16273	0	0	0	0	27888	12097	16512	0	0	0	0	28608
3D	0	14271	0	0	0	0	14271	0	14220	0	0	0	0	14220
3E	0	12521	0	0	0	0	12521	0	12477	0	0	0	0	12477
4W	54652	8384	0	0	87	0	63123	48032	13832	0	0	712	0	62576
4X	88286	5816	0	0	93	0	94195	85846	7859	0	0	572	0	94277
4Y	116651	0	0	0	0	0	116651	117068	0	0	0	0	0	117068
4Z	186636	0	0	0	0	0	186636	186271	0	0	0	0	0	186271
Area 5	23349	7544	0	0	223	0	31116	24191	6283	0	0	517	0	30991
Noyes	115591	57974	0	18741	30963	11265	234534	119005	58769	0	18321	33605	11265	240965
Dall	105579	52327	0	17155	28330	6742	210134	105622	52340	0	14486	30998	6742	210188
Cordova	1265	514	0	1212	3168	0	6158	1157	328	0	3703	546	0	5734
Sumner	8908	16481	1863	20767	37174	0	85193	16265	8895	1778	15745	42193	0	84876
U-Clar	6343	11830	832	17009	25913	0	61926	12443	5113	789	10868	31800	0	61013
M-Clar	276	466	0	607	1437	0	2786	275	286	0	1123	910	0	2594
L-Clar	10309	20148	0	30002	26643	0	87101	5501	5992	0	15804	21330	0	48627
Revilla	4253	12541	0	14405	11336	0	42535	0	0	0	0	38627	0	38627
Union	0	0	0	0	1276	0	1276	0	0	0	0	0	0	0
Tree	24568	108303	0	10146	2625	0	145642	24499	107505	0	2834	9808	0	144646
Term101	0	0	0	11537	0	0	11537	0	0	0	11536	0	0	11536
Term103	0	0	0	0	7530	0	7530	0	0	0	0	0	0	0
Dist105	57	68	50	62	198	0	435	0	0	0	0	0	0	0
Term108	0	0	4143	0	0	0	4143	0	0	3945	0	0	0	3945
Total Catch	879056	399582	6888	153014	177369	28308	1644217	874639	368971	6512	100445	214473	28308	1593348
Escapement	963709	259299	69036	94581	209798	0	1596423	840759	236251	69036	108217	339249	0	1593512
Total Run	1842765	658881	75924	247595	387167	28308	3212332	1715398	605222	75548	208662	553722	28308	3158552
Expl Rate	47.7	60.65	9.07	61.8	45.81	0	50.3	51.0	61.0	8.6	48.1	38.7	0.0	49.6

Appendix D.6 1987 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	21375	2553	0	2306	12	8589	34834	23594	2598	0	952	184	7507	34835
ITroll	26886	1909	0	1864	13	14788	45461	26874	1552	0	1049	116	15870	45461
3A	32792	1929	0	1853	8	0	36582	35544	3264	0	451	295	0	39554
3B	87587	50117	0	17644	190	0	155538	92561	53911	0	3220	6110	0	155802
3C	21996	29569	0	0	0	0	51565	23245	31807	0	0	0	0	55052
3D	0	32115	0	0	0	0	32115	0	26659	0	0	0	0	26659
3E	0	21356	0	0	0	0	21356	0	17728	0	0	0	0	17728
4W	87001	5963	0	0	41	0	93005	80030	7866	0	0	1857	0	89753
4X	89854	4346	0	0	32	0	94232	88588	4432	0	0	1238	0	94258
4Y	126586	0	0	0	0	0	126586	128276	0	0	0	0	0	128276
4Z	202857	0	0	0	0	0	202857	201866	0	0	0	0	0	201866
Area 5	27710	11888	0	0	86	0	39684	32037	6482	0	0	862	0	39381
Noyes	34776	20620	0	27077	9984	0	92458	34781	20620	0	6511	30557	0	92469
Dall	29646	17257	0	23469	8150	0	78522	29645	17257	0	6842	24776	0	78520
Cordova	0	31	0	740	661	0	1432	0	0	0	1401	0	0	1401
Sumner	3800	8708	1574	45214	19867	0	79163	8107	4400	1572	9782	55292	0	79153
U-Clar	3780	4945	806	33958	13773	0	57261	5757	2957	801	7070	40652	0	57237
M-Clar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L-Clar	9106	19407	0	28264	7037	0	63813	1212	3291	0	4952	7510	0	16965
Revilla	3169	12393	0	30043	5130	0	50736	0	0	0	0	43049	0	43049
Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tree	15460	66943	0	20363	4652	0	107418	15460	66300	0	4727	20316	0	106803
Term101	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dist105	0	0	0	0	1	0	1	0	0	0	0	0	0	0
Term108	0	0	1619	0	0	0	1619	0	0	1616	0	0	0	1616
Total Catch	824382	312048	3998	232796	69637	23377	1466238	827577	271126	3990	46955	232816	23377	1405841
Escapement	1576061	250819	39264	187173	86485	0	2139802	1435977	219207	39264	137575	525444	0	2357467
Total Run	2400443	562867	43262	419969	156122	23377	3582663	2263554	490333	43254	184530	758260	23377	3739931
Expl Rate	34.34	55.44	9.24	55.43	44.6	0	40.27	36.6	55.3	9.2	25.5	30.7	0.0	37.0

Appendix D.7 1988 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	37223	941	0	645	11	2825	41645	37617	982	0	136	89	2817	41641
1Troll	42822	987	0	466	15	7599	51889	42668	1404	0	160	66	7607	51905
3A	165463	5602	0	2091	42	0	173199	165413	5887	0	353	398	0	172051
3B	80541	19429	0	3402	180	0	103552	82666	18874	0	699	1064	0	103304
3C	8246	5026	0	0	0	0	13272	8464	4883	0	0	0	0	13346
3D	0	13502	0	0	0	0	13502	0	14372	0	0	0	0	14372
3E	0	171	0	0	0	0	171	0	182	0	0	0	0	182
4W	194233	10344	0	0	129	0	204706	183858	21799	0	0	1370	0	207027
4X	223245	7536	0	0	103	0	230884	214493	10369	0	0	928	0	225790
4Y	389634	0	0	0	0	0	389634	392503	0	0	0	0	0	392503
4Z	687286	0	0	0	0	0	687286	679310	0	0	0	0	0	679310
Area 5	34562	5635	0	0	120	0	40317	33908	5648	0	0	759	0	40315
Noyes	300847	21951	0	24076	40620	0	387495	301374	18111	0	16282	48513	0	384280
Dall	150841	13597	0	14588	24763	0	203789	150816	11808	0	9622	29730	0	201976
Cordova	878	243	0	112	454	0	1687	878	0	0	566	0	0	1444
Sumner	3005	2922	1189	17240	32981	0	57337	5097	831	1189	9082	41138	0	57337
U-Clar	2143	1721	674	10213	20439	0	35191	3468	397	674	5709	24944	0	35192
M-Clar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L-Clar	9506	17265	0	9530	10308	0	46609	5256	5057	0	4124	4900	0	19337
Revilla	6639	11196	0	6948	5685	0	30468	0	0	0	0	25025	0	25025
Union	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tree	28313	72968	0	9978	4827	0	116086	28297	72429	0	2865	11939	0	115530
Term101	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	673	0	673	0	0	0	0	0	0	0
Dist105	32	81	18	49	74	0	255	0	0	0	0	0	0	0
Term108	0	0	1095	0	0	0	1095	0	0	1095	0	0	0	1095
Total Catch	2365459	211118	2976	99340	141424	10424	2830742	2336086	193032	2958	49598	190863	10424	2782962
Escapement	1637238	190022	41915	67486	162174	0	2098835	1526435	163263	41915	73048	230367	0	2035028
Total Run	4002697	401140	44891	166826	303598	10424	4919153	3862521	356295	44873	122646	421230	10424	4807566
Expl Rate	59.1	52.63	6.63	59.55	46.58	0	57.33	60.5	54.2	6.6	40.4	45.3	0.0	57.7

Appendix D.8 1989 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	9633	1108	0	2253	167	73786	86947	8906	687	0	1259	366	75729	86947
ITroll	15998	1687	0	816	56	94954	113510	18506	1206	0	600	185	93011	113508
3A	53795	4160	0	2333	104	0	60393	62235	4969	0	1715	644	0	69563
3B	118511	63753	0	11971	1734	0	195968	129945	49112	0	9887	12628	0	201573
3C	70964	76780	0	0	0	0	147744	77811	59148	0	0	0	0	136958
3D	0	24599	0	0	0	0	24599	0	21163	0	0	0	0	21163
3E	0	13830	0	0	0	0	13830	0	11899	0	0	0	0	11899
4W	106507	7093	0	0	357	0	113958	98571	17395	0	0	2879	0	118845
4X	86947	5565	0	0	263	0	92776	87151	5865	0	0	1362	0	94378
4Y	143657	0	0	0	0	0	143657	145160	0	0	0	0	0	145160
4Z	272008	0	0	0	0	0	272008	264016	0	0	0	0	0	264016
Area 5	16358	5388	0	0	489	0	22235	18364	2985	0	0	890	0	22239
Noyes	122595	33093	0	8282	23751	137254	324976	130531	16156	0	11960	21331	137254	317232
Dall	90621	27633	0	6108	13492	53772	191626	83735	30106	0	5996	18002	53772	191611
Cordova	232	108	0	2633	5520	0	8492	301	38	0	3150	5002	0	8491
Sumner	22425	11587	4216	19285	50313	0	107827	26374	7520	4155	15185	54406	0	107640
U-Clar	18195	8888	2015	18019	41609	0	88726	22195	4777	1924	12997	46401	0	88294
M-Clar	701	345	0	810	2690	0	4545	1045	0	0	1614	1885	0	4544
L-Clar	68751	28673	0	16259	19817	0	133500	50426	9839	0	9747	15198	0	85210
Revilla	19118	36183	0	12945	12941	0	81188	0	0	0	0	78208	0	78208
Union	0	0	0	0	6947	0	6947	0	0	0	0	0	0	0
Tree	33776	77290	0	13174	20653	0	144894	74265	36765	0	6370	27456	0	144856
Term101	0	0	0	6733	0	0	6733	0	0	0	1497	0	0	1497
Term103	0	0	0	0	12995	0	12995	0	0	0	0	0	0	0
Dist105	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Term108	0	0	10079	0	0	0	10079	0	0	11729	0	0	0	11729
Total Catch	1270793	427766	16310	121620	213898	359766	2410152	1299538	279632	17809	81979	286842	359766	2325566
Escapement	1362147	158920	75054	75908	225679	0	1897708	1260374	138606	75054	82210	262454	0	1818698
Total Run	2632940	586686	91364	197528	439577	359766	3948094	2559912	418238	92863	164189	549296	359766	3784498
Expl Rate	48.27	72.91	17.85	61.57	48.66	0	51.93	50.8	66.9	19.2	49.9	52.2	0.0	51.9

Appendix D.9 1990 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	22928	1770	0	1621	60	42269	68649	17984	1992	0	339	200	42036	62551
1Troll	17863	651	0	842	360	7453	27169	17623	196	0	1617	33	7686	27155
3A	41828	2870	0	1868	68	0	46634	41973	3300	0	626	209	0	46108
3B	69030	30228	0	9018	1056	0	109332	72518	28371	0	4616	3575	0	109080
3C	29638	21279	0	0	0	0	50917	31136	19972	0	0	0	0	51108
3D	0	8253	0	0	0	0	8253	0	8058	0	0	0	0	8058
3E	0	1529	0	0	0	0	1529	0	1493	0	0	0	0	1493
4W	145354	5135	0	0	355	0	150843	132223	10679	0	0	1359	0	144261
4X	97379	2201	0	0	140	0	99720	96306	3651	0	0	432	0	100389
4Y	259054	0	0	0	0	0	259054	268252	0	0	0	0	0	268252
4Z	318896	0	0	0	0	0	318896	309543	0	0	0	0	0	309543
Area 5	44534	6926	0	0	496	0	51956	46206	4384	0	0	739	0	51329
Noyes	199147	28951	0	21545	43312	181105	474060	205486	28951	0	34447	34398	181105	484387
Dall	147901	30862	0	19630	35015	89331	322739	147901	30862	0	22081	32563	89331	322738
Cordova	654	95	0	2764	5498	0	9010	703	46	0	3406	4855	0	9010
Sumner	24628	16102	2255	25630	36265	0	104881	24592	15726	2056	14675	47155	0	104204
U-Clar	20314	8296	1671	19808	32027	0	82117	20188	7458	1228	13306	38520	0	80700
M-Clar	1123	130	0	544	3491	0	5289	1254	0	0	3601	434	0	5289
L-Clar	31969	34700	0	33195	30587	0	130451	22363	15257	0	19019	20030	0	76669
Revilla	7334	8231	0	9103	6662	0	31330	0	0	0	0	25194	0	25194
Union	0	0	0	0	1299	0	1299	0	0	0	0	0	0	0
Tree	25508	46095	0	7847	6207	0	85656	25397	46087	0	6183	7849	0	85516
Term101	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Term103	0	0	0	0	10340	0	10340	0	0	0	0	0	0	0
Dist105	7	1	7	4	48	0	66	0	0	0	0	0	0	0
Term108	0	0	11554	0	0	0	11554	0	0	11021	0	0	0	11021
Total Catch	1505089	254305	15487	153418	213287	320158	2461744	1481647	226483	14306	123917	217546	320158	2384056
Escapement	1216884	205318	57386	112974	231456	0	1824018	1145020	178548	57386	120058	351330	0	1852342
Total Run	2721973	459623	72873	266392	444743	320158	3965604	2626667	405031	71692	243975	568876	320158	3916240
Expl Rate	55.29	55.33	21.25	57.59	47.96	0	54	56.4	55.9	20.0	50.8	38.2	0.0	52.7

Appendix D.10 1991 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	22914	2128	0	1723	15	32382	59163	18436	5009	0	824	372	32394	57035
1Troll	28394	978	0	906	186	1827	32291	27949	1305	0	1192	31	1815	32292
3A	264614	24606	0	8368	67	0	297655	247753	35680	0	3048	1396	0	287877
3B	269012	108192	0	13619	355	0	391177	235070	135632	0	8097	9553	0	388352
3C	38210	60004	0	0	0	0	98214	33389	75222	0	0	0	0	108611
3D	0	54831	0	0	0	0	54831	0	53722	0	0	0	0	53722
3E	0	46090	0	0	0	0	46090	0	45157	0	0	0	0	45157
4W	192809	21856	0	0	143	0	214807	171941	40365	0	0	2796	0	215102
4X	126601	10026	0	0	72	0	136699	123055	12610	0	0	1038	0	136703
4Y	277903	0	0	0	0	0	277903	285167	0	0	0	0	0	285167
4Z	361931	0	0	0	0	0	361931	351895	0	0	0	0	0	351895
Area 5	29232	16334	0	0	92	0	45658	34113	10663	0	0	730	0	45506
Noyes	284815	49491	0	46887	47725	39336	468254	287970	50110	0	51514	47654	39336	476584
Dall	241620	46914	0	36624	31844	24554	381556	240792	46912	0	24852	43614	24554	380724
Cordova	322	114	0	2422	2208	0	5066	362	67	0	1823	2807	0	5059
Sumner	7222	22766	12573	22722	23917	0	89201	6883	20697	12248	12519	34108	0	86455
U-Clar	5011	13383	5288	15882	16768	0	56331	4752	12242	4903	8000	24644	0	54541
M-Clar	148	22	0	195	331	0	696	170	0	0	381	146	0	697
L-Clar	17778	24669	0	40302	19658	0	102407	10155	12098	0	12506	24094	0	58853
Revilla	6975	10546	0	15585	6353	0	39459	0	0	0	0	36595	0	36595
Union	0	0	0	0	2565	0	2565	0	0	0	0	0	0	0
Tree	52929	64361	0	11431	2801	0	131522	52902	64760	0	4642	8957	0	131261
Term101	0	0	0	6203	0	0	6203	0	0	0	7954	0	0	7954
Term103	0	0	0	0	13796	0	13796	0	0	0	0	0	0	0
Dist105	118	97	356	416	910	0	1898	0	0	0	0	0	0	0
Term108	0	0	17966	0	0	0	17966	0	0	24340	0	0	0	24340
Total Catch	2228556	577406	36184	223286	169807	98099	3333338	2132754	622252	41490	137351	238536	98099	3270483
Escapement	1530996	381588	120152	166267	183311	0	2382314	1371650	345431	120152	187838	564729	0	2589800
Total Run	3759552	958994	156336	389553	353118	98099	5617553	3504404	967683	161642	325189	803265	98099	5762184
Expl Rate	59.28	60.21	23.14	57.32	48.09	0	57.59	60.9	64.3	25.7	42.2	29.7	0.0	55.1

Appendix D.11 1992 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	32140	11204	0	2159	64	40836	86402	27940	12410	0	1187	353	44475	86365
1Troll	8665	1346	0	224	122	5999	16356	8314	1764	0	974	29	5180	16261
3A	159018	32364	0	6105	207	0	197694	161461	33334	0	1197	1055	0	197047
3B	116236	154641	0	13649	1172	0	285697	114352	153669	0	5036	6920	0	279977
3C	32724	100464	0	0	0	0	133188	32194	99832	0	0	0	0	132026
3D	0	71369	0	0	0	0	71369	0	72363	0	0	0	0	72363
3E	0	304326	0	0	0	0	304326	0	308562	0	0	0	0	308562
4W	408004	89654	0	0	1117	0	498776	363387	119549	0	0	7183	0	490119
4X	198312	37942	0	0	535	0	236790	189993	42506	0	0	2081	0	234580
4Y	471083	0	0	0	0	0	471083	463175	0	0	0	0	0	463175
4Z	448352	0	0	0	0	0	448352	452178	0	0	0	0	0	452178
Area 5	33790	37466	0	0	462	0	71718	40068	30473	0	0	1181	0	71722
Noyes	367097	98624	0	32098	72966	42930	613716	365933	98464	0	30400	74995	42930	612722
Dall	266993	68330	0	23603	60005	39579	458510	265021	68025	0	30861	52747	39579	456233
Cordova	215	128	0	537	2154	0	3034	170	173	0	2196	495	0	3034
Sumner	19692	14534	25574	24027	62692	0	146519	18524	14525	23064	12991	73703	0	142807
U-Clar	7606	5308	9286	9600	24640	0	56440	7395	5308	7633	5442	28788	0	54566
M-Clar	278	334	0	708	4418	0	5738	218	334	0	2555	2573	0	5680
L-Clar	14364	22145	0	25871	46840	0	109220	11053	6728	0	13820	20454	0	52055
Revilla	7276	10141	0	22014	29196	0	68627	0	0	0	0	62822	0	62822
Union	0	0	0	0	6506	0	6506	0	0	0	0	0	0	0
Tree	26262	168223	0	31552	18464	0	244501	26095	168197	0	8236	41721	0	244249
Term101	0	0	0	23000	0	0	23000	0	0	0	23001	0	0	23001
Term103	0	0	0	0	1423	0	1423	0	0	0	0	0	0	0
Dist105	1	1	4	2	14	0	23	0	0	0	0	0	0	0
Term108	0	0	52702	0	0	0	52702	0	0	52819	0	0	0	52819
Total Catch	2618108	1228544	87566	215151	332996	129344	4611709	2547472	1236216	83516	137897	377102	132164	4514368
Escapement	1581361	731540	154542	99828	405230	0	2972501	1547394	687209	154542	145867	687258	0	3222270
Total Run	4199469	1960084	242108	314979	738226	129344	7454865	4094866	1923425	238058	283764	1064360	132164	7604474
Expl Rate	62.34	62.68	36.17	68.31	45.11	0	60.13	62.2	64.3	35.1	48.6	35.4	0.0	57.6

Appendix D.12 1993 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	46497	20222	0	7196	248	146475	220637	35176	23904	0	1432	452	160436	221400
1Troll	18986	4976	0	1475	966	10406	36809	0	0	0	0	0	0	0
3A	203423	40917	0	9637	176	0	254154	202251	65506	0	1950	603	0	270310
3B	239789	314795	0	30327	2305	0	587216	149980	247157	0	7361	6004	0	410503
3C	81639	144187	0	0	0	0	225826	51063	113207	0	0	0	0	164269
3D	0	61540	0	0	0	0	61540	0	109881	0	0	0	0	109881
3E	0	220942	0	0	0	0	220942	0	394495	0	0	0	0	394495
4W	461266	118172	0	0	1061	0	580499	386188	191855	0	0	3522	0	581565
4X	271591	64945	0	0	647	0	337182	234032	77647	0	0	1639	0	313318
4Y	270510	0	0	0	0	0	270510	268430	0	0	0	0	0	268430
4Z	495551	0	0	0	0	0	495551	509830	0	0	0	0	0	509830
Area 5	21405	21212	0	0	237	0	42855	25851	15791	0	0	591	0	42233
Noyes	182015	76160	0	27053	63828	109921	458977	213064	76735	0	47188	51330	109921	498238
Dall	206494	106094	0	34055	67552	72084	486279	208312	105581	0	29734	70360	72084	486071
Cordova	617	529	0	486	7608	0	9240	461	622	0	7438	717	0	9238
Sumner	28639	14096	35277	16059	35461	0	129532	28410	14097	29734	15831	35625	0	123697
U-Clar	18110	8381	18567	10979	19822	0	75859	18110	8380	14408	8814	21930	0	71642
M-Clar	30	342	0	1646	5971	0	7989	30	342	0	3678	3903	0	7953
L-Clar	44397	38302	0	81601	130933	0	295234	47129	56041	0	43907	67368	0	214445
Revilla	13809	12548	0	27520	41974	0	95850	0	0	0	0	13218	0	13218
Union	0	0	0	0	43597	0	43597	0	0	0	0	0	0	0
Tree	44579	307034	0	24014	18278	0	393905	44522	307011	0	16571	25541	0	393645
Term101	0	0	0	150316	0	0	150316	0	0	0	99390	0	0	99390
Term103	0	0	0	0	41425	0	41425	0	0	0	0	0	0	0
Dist105	4364	1494	5900	2639	19532	0	33928	0	0	0	0	0	0	0
Term108	0	0	76864	0	0	0	76864	0	0	70301	0	0	0	70301
Total Catch	2653712	1576887	136608	425002	501620	338886	5632715	2422841	1808252	114443	283292	302804	342441	5274074
Escapement	2100087	573697	176100	79729	594720	0	3524333	1952256	584026	176100	242850	753124	0	3708356
Total Run	4753799	2150584	312708	504731	1096340	338886	8818162	4375097	2392278	290543	526142	1055928	342441	8639989
Expl Rate	55.82	73.32	43.69	84.2	45.75	0	60.03	55.4	75.6	39.4	53.8	28.7	0.0	57.1

Appendix D.13 1994 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	28243	9308	0	1633	38	74538	113759	9848	6903	0	634	83	96316	113784
1Troll	19698	3304	0	457	112	8083	31655	0	0	0	0	0	0	0
3A	62548	7443	0	1335	36	0	71362	64338	8031	0	413	227	0	73009
3B	86663	90843	0	6736	409	0	184650	76545	101788	0	1648	2256	0	182237
3C	18922	32483	0	0	0	0	51405	16713	36396	0	0	0	0	53109
3D	0	23831	0	0	0	0	23831	0	22690	0	0	0	0	22690
3E	0	17238	0	0	0	0	17238	0	16413	0	0	0	0	16413
4W	206211	30297	0	0	259	0	236767	193905	40977	0	0	1968	0	236850
4X	95762	14096	0	0	239	0	110096	93822	14302	0	0	602	0	108726
4Y	117765	0	0	0	0	0	117765	115086	0	0	0	0	0	115086
4Z	186618	0	0	0	0	0	186618	190400	0	0	0	0	0	190400
Area 5	19751	16545	0	0	108	0	36404	24933	10962	0	0	508	0	36403
Noyes	351075	83963	0	45627	97856	186569	765091	348280	84579	0	51709	94042	186569	765179
Dall	104710	38154	0	15854	28630	183697	371045	104506	38493	0	9249	35100	183697	371045
Cordova	805	368	0	1828	6969	0	9969	376	757	0	7071	1725	0	9929
Sumner	18796	13758	38001	25219	61532	0	157305	17329	13637	37064	19190	67512	0	154732
U-Clar	9104	4204	10302	9172	22411	0	55192	7587	3994	9792	7731	23800	0	52904
M-Clar	3394	149	0	531	2320	0	6395	2843	120	0	1416	1439	0	5818
L-Clar	40141	24713	0	17515	19511	0	101880	15544	16294	0	10170	18996	0	61004
Revilla	6032	5125	0	4606	4314	0	20078	0	0	0	0	15093	0	15093
Union	0	0	0	0	8914	0	8914	0	0	0	0	0	0	0
Tree	9319	76941	0	10270	3746	0	100276	8991	75512	0	5855	9462	0	99820
Term101	0	0	0	0	0	0	0	0	0	0	115	0	0	115
Term103	0	0	0	0	5323	0	5323	0	0	0	0	0	0	0
Dist105	13	6	50	19	128	0	216	0	0	0	0	0	0	0
Term108	0	0	97054	0	0	0	97054	0	0	98174	0	0	0	98174
Total Catch	1385570	492769	145406	140801	262854	452887	2880288	1291048	491847	145030	115200	272814	466582	2782520
Escapement	1334373	344369	127527	104960	305957	0	2217186	1205398	344647	127527	116929	372112	0	2166613
Total Run	2719943	837138	272933	245761	568811	452887	4644587	2496446	836494	272557	232129	644926	466582	4482552
Expl Rate	50.94	58.86	53.28	57.29	46.21	0	52.26	51.7	58.8	53.2	49.6	42.3	0.0	51.7

Appendix D.14 1995 Sockeye catch by stock.

	Revised Analysis (Available Scale Data)							Gazey and English 2000 (Available Scale Data)						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	86452	14871	0	1998	86	2290	105697	74481	24719	0	1147	738	3741	104826
1Troll	43093	4394	0	547	529	1451	50014	0	0	0	0	0	0	0
3A	558200	48202	0	7442	253	0	614097	528915	62582	0	2876	1517	0	595890
3B	371469	200464	0	9188	1003	0	582124	352432	221016	0	3958	6612	0	584018
3C	89438	75480	0	0	0	0	164918	84855	83218	0	0	0	0	168073
3D	0	26061	0	0	0	0	26061	0	27088	0	0	0	0	27088
3E	0	84533	0	0	0	0	84533	0	87865	0	0	0	0	87865
4W	535719	50979	0	0	731	0	587429	504891	81567	0	0	2926	0	589384
4X	267799	27813	0	0	380	0	295991	257909	30843	0	0	1309	0	290061
4Y	371517	0	0	0	0	0	371517	360521	0	0	0	0	0	360521
4Z	424361	0	0	0	0	0	424361	412258	0	0	0	0	0	412258
Area 5	31086	18027	0	0	182	0	49296	35718	13848	0	0	594	0	50160
Noyes	139293	49331	0	5898	29445	16682	240648	135573	50447	0	16983	20099	16682	239784
Dall	150758	58560	0	6426	33459	6261	255464	141813	58935	0	21467	18811	6261	247287
Cordova	184	95	0	294	2226	0	2798	138	140	0	1889	631	0	2798
Sumner	58855	15746	17411	9754	31639	0	133406	57641	15694	14557	12884	28314	0	129090
U-Clar	40817	7537	6961	5285	18208	0	78809	39330	7537	4103	7346	16145	0	74461
M-Clar	4492	1041	0	2050	15719	0	23301	3605	2692	0	11182	5800	0	23279
L-Clar	128428	56541	0	26280	59132	0	270381	98947	29779	0	25365	32236	0	186327
Revilla	22705	12486	0	6628	11397	0	53216	0	0	0	0	38927	0	38927
Union	0	0	0	0	7969	0	7969	0	0	0	0	0	0	0
Tree	39633	111085	0	7228	5801	0	163747	38162	111223	0	4477	8396	0	162258
Term101	0	0	0	0	0	0	0	0	0	0	7432	0	0	7432
Term103	0	0	0	0	7447	0	7447	0	0	0	0	0	0	0
Dist105	8817	1742	3306	1468	9104	0	24436	0	0	0	0	0	0	0
Term108	0	0	76697	0	0	0	76697	0	0	76074	0	0	0	76074
														4457861
Total Catch	3373116	864987	104375	90486	234709	26684	4694357	3127191	909192	94734	117005	183054	26684	4457860
Escapement	2236899	303743	142308	44052	234039	0	2961041	2063957	312290	142308	51629	162363	0	2732547
Total Run	5610015	1168730	246683	134538	468748	26684	7628714	5191148	1221482	237042	168634	345417	26684	7163723
Expl Rate	60.13	74.01	42.31	67.26	50.07	0	61.19	60.2	74.4	40.0	69.4	53.0	0.0	61.9

Appendix E.1 Sockeye catch by stock 1982. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	1633	184	0	315	-2167	35	0
1Troll	155	-45	0	13	-88	-35	0
3A	39041	-19245	0	2840	-17939	0	4697
3B	15502	-9184	0	-4049	-10161	0	-7890
3C	759	-1826	0	0	0	0	-1068
3D	0	5481	0	0	0	0	5481
3E	0	0	0	0	0	0	0
4W	91637	-41450	0	0	-16639	0	33547
4X	6802	-13477	0	0	-174	0	-6850
4Y	0	0	0	0	0	0	0
4Z	42637	0	0	0	0	0	42637
Area 5	-18123	20249	0	0	116	0	2242
Noyes	413	2141	0	-1106	1442	0	2891
Dall	819	-625	0	2825	-2730	0	289
Cordova	-11	52	0	-231	463	0	272
Sumner	-14271	14325	1407	-5244	5254	0	1470
U-Clar	-7234	7277	852	-216	257	0	936
M-Clar	0	0	0	0	0	0	0
L-Clar	7659	17002	0	3478	16594	0	44732
Revilla	10473	4798	0	4720	-14539	0	5451
Union	0	0	0	0	305	0	305
Tree	-28275	28576	0	8353	-8317	0	337
Term101	0	0	0	-163	0	0	-163
Term103	0	0	0	0	122	0	122
Dist105	0	0	0	0	43	0	43
Term108	0	0	381	0	0	0	381
Total Catch	149612	14232	2640	11535	-48157	0	129863
Escapement	144508	32760	0	-7229	-4772	0	165267
Total Run	294120	46992	2640	4306	-52929	0	295130
Expl Rate	-0.9	-1.6	1.4	6.7	-3.5	0.0	-0.9

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.2 Sockeye catch by stock 1983. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	683	-592	0	1079	-386	-785	-1
1Troll	137	7	0	-244	68	32	0
3A	10515	-3790	0	3531	-637	0	9619
3B	-9157	6620	0	6288	-10822	0	-7072
3C	-5895	5903	0	0	0	0	9
3D	0	2542	0	0	0	0	2542
3E	0	0	0	0	0	0	0
4W	12748	-10387	0	0	-2568	0	-207
4X	-973	372	0	0	-326	0	-927
4Y	0	0	0	0	0	0	0
4Z	2141	0	0	0	0	0	2141
Area 5	-1150	1447	0	0	-293	0	3
Noyes	-14135	10389	0	-868	-2720	0	-7333
Dall	5347	-5286	0	3516	-3643	0	-66
Cordova	-188	133	0	-207	262	0	0
Sumner	-1619	1695	264	537	-408	0	470
U-Clar	-2003	2003	404	883	-883	0	404
M-Clar	-1260	1201	0	-1117	1268	0	91
L-Clar	4437	14304	0	4673	6398	0	29812
Revilla	6836	3498	0	4009	-11124	0	3218
Union	0	0	0	0	1239	0	1239
Tree	-21506	21888	0	20755	-20754	0	383
Term101	0	0	0	0	0	0	0
Term103	0	0	0	0	9308	0	9308
Dist105	9	46	57	9	276	0	397
Term108	0	0	149	0	0	0	149
Total Catch	-15034	51990	874	42845	-35745	-753	44176
Escapement	102986	25872	0	0	-48635	0	80223
Total Run	87952	77862	874	42845	-84380	-753	125153
Expl Rate	-2.8	0.7	1.1	12.9	0.6	0.0	-0.5

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.3 Sockeye catch by stock 1984. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	4975	543	0	1098	11	-3499	3127
1Troll	1773	141	0	218	9	-2141	1
3A	-3115	-2375	0	3758	-687	0	-2419
3B	592	-266	0	2296	-2099	0	522
3C	292	-261	0	0	0	0	31
3D	0	3092	0	0	0	0	3092
3E	0	0	0	0	0	0	0
4W	18434	-8162	0	0	-2234	0	8038
4X	13868	-6590	0	0	-2382	0	4896
4Y	7168	0	0	0	0	0	7168
4Z	-1630	0	0	0	0	0	-1630
Area 5	-332	920	0	0	-522	0	66
Noyes	-1372	-23	0	8971	-9696	0	-2120
Dall	2	-1	0	8270	-8271	0	1
Cordova	-68	70	0	-670	669	0	1
Sumner	19	300	105	8173	-7808	0	790
U-Clar	14	887	167	11516	-11515	0	1069
M-Clar	-419	419	0	-473	475	0	2
L-Clar	9729	13730	0	27636	-2073	0	49021
Revilla	6540	8229	0	16533	-27195	0	4106
Union	0	0	0	0	1043	0	1043
Tree	65	1606	0	15078	-15072	0	1678
Term101	0	0	0	162	0	0	162
Term103	0	0	0	0	2243	0	2243
Dist105	1	3	11	8	39	0	62
Term108	0	0	153	0	0	0	153
Total Catch	56534	12262	436	102572	-85063	-5640	81100
Escapement	91312	22097	0	-2869	-278422	0	-167882
Total Run	147846	34359	436	99703	-363485	-5640	-81142
Expl Rate	-0.5	-1.3	0.5	22.2	11.8	0.0	3.4

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.4 Sockeye catch by stock 1985. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	9735	-1118	0	1637	-270	-1273	8712
1Troll	354	-89	0	175	-27	-413	0
3A	-5102	-121	0	4171	-386	0	-1438
3B	-7566	2310	0	2110	-1697	0	-4843
3C	-3644	1806	0	0	0	0	-1838
3D	0	1937	0	0	0	0	1937
3E	0	7677	0	0	0	0	7677
4W	18648	-15511	0	0	-3527	0	-389
4X	-2273	-1235	0	0	-1608	0	-5116
4Y	-10063	0	0	0	0	0	-10063
4Z	15569	0	0	0	0	0	15569
Area 5	-3378	3943	0	0	-570	0	-5
Noyes	-22600	9832	0	-2361	-1466	0	-16595
Dall	4561	-4158	0	2805	-2885	0	323
Cordova	802	488	0	-2907	1677	0	59
Sumner	-17913	17911	272	3124	-3124	0	271
U-Clar	-10635	11863	1445	1008	-3099	0	583
M-Clar	-252	215	0	-1016	898	0	-155
L-Clar	15690	18977	0	12653	16072	0	63392
Revilla	13109	3609	0	17988	-27697	0	7009
Union	0	0	0	0	3	0	3
Tree	-37086	37801	0	15199	-15052	0	862
Term101	0	0	0	1	0	0	1
Term103	0	0	0	0	16596	0	16596
Dist105	218	126	486	474	912	0	2216
Term108	0	0	498	0	0	0	498
Total Catch	-41824	96262	2702	55060	-25252	-1686	85261
Escapement	124872	50274	0	-20056	-126643	0	28447
Total Run	83048	146536	2702	35004	-151895	-1686	115394
Expl Rate	-1.6	4.0	1.1	12.9	7.0	0.0	0.4

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.5 Sockeye catch by stock 1986. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	1738	-1062	0	1038	-188	22	1548
1Troll	930	-253	0	-635	-20	-22	0
3A	3318	-2467	0	2210	-263	0	2799
3B	-1635	-657	0	2734	-2011	0	-1569
3C	-482	-239	0	0	0	0	-720
3D	0	51	0	0	0	0	51
3E	0	44	0	0	0	0	44
4W	6620	-5448	0	0	-625	0	547
4X	2440	-2043	0	0	-479	0	-82
4Y	-417	0	0	0	0	0	-417
4Z	365	0	0	0	0	0	365
Area 5	-842	1261	0	0	-294	0	125
Noyes	-3414	-795	0	420	-2642	0	-6431
Dall	-43	-13	0	2669	-2668	0	-54
Cordova	108	186	0	-2491	2622	0	424
Sumner	-7357	7586	85	5022	-5019	0	317
U-Clar	-6100	6717	43	6141	-5887	0	913
M-Clar	1	180	0	-516	527	0	192
L-Clar	4808	14156	0	14198	5313	0	38474
Revilla	4253	12541	0	14405	-27291	0	3908
Union	0	0	0	0	1276	0	1276
Tree	69	798	0	7312	-7183	0	996
Term101	0	0	0	1	0	0	1
Term103	0	0	0	0	7530	0	7530
Dist105	57	68	50	62	198	0	435
Term108	0	0	198	0	0	0	198
Total Catch	4417	30611	376	52569	-37104	0	50869
Escapement	122950	23048	0	-13636	-129451	0	2911
Total Run	127367	53659	376	38933	-166555	0	53780
Expl Rate	-3.3	-0.3	0.5	13.7	7.1	0.0	0.8

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.6 Sockeye catch by stock 1987. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	-2219	-45	0	1354	-172	1082	-1
1Troll	12	357	0	815	-103	-1082	0
3A	-2752	-1335	0	1402	-287	0	-2972
3B	-4974	-3794	0	14424	-5920	0	-264
3C	-1249	-2238	0	0	0	0	-3487
3D	0	5456	0	0	0	0	5456
3E	0	3628	0	0	0	0	3628
4W	6971	-1903	0	0	-1816	0	3252
4X	1266	-86	0	0	-1206	0	-26
4Y	-1690	0	0	0	0	0	-1690
4Z	991	0	0	0	0	0	991
Area 5	-4327	5406	0	0	-776	0	303
Noyes	-5	0	0	20566	-20573	0	-11
Dall	1	0	0	16627	-16626	0	2
Cordova	0	31	0	-661	661	0	31
Sumner	-4307	4308	2	35432	-35425	0	10
U-Clar	-1977	1988	5	26888	-26879	0	24
M-Clar	0	0	0	0	0	0	0
L-Clar	7894	16116	0	23312	-473	0	46848
Revilla	3169	12393	0	30043	-37919	0	7687
Union	0	0	0	0	0	0	0
Tree	0	643	0	15636	-15664	0	615
Term101	0	0	0	0	0	0	0
Term103	0	0	0	0	0	0	0
Dist105	0	0	0	0	1	0	1
Term108	0	0	3	0	0	0	3
Total Catch	-3195	40922	8	185841	-163179	0	60397
Escapement	140084	31612	0	49598	-438959	0	-217665
Total Run	136889	72534	8	235439	-602138	0	-157268
Expl Rate	-2.2	0.1	0.0	30.0	13.9	0.0	3.3

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.7 Sockeye catch by stock 1988. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	-394	-41	0	509	-78	8	4
1Troll	154	-417	0	306	-51	-8	-16
3A	50	-285	0	1738	-356	0	1148
3B	-2125	555	0	2703	-884	0	248
3C	-218	143	0	0	0	0	-74
3D	0	-870	0	0	0	0	-870
3E	0	-11	0	0	0	0	-11
4W	10375	-11455	0	0	-1241	0	-2321
4X	8752	-2833	0	0	-825	0	5094
4Y	-2869	0	0	0	0	0	-2869
4Z	7976	0	0	0	0	0	7976
Area 5	654	-13	0	0	-639	0	2
Noyes	-527	3840	0	7794	-7893	0	3215
Dall	25	1789	0	4966	-4967	0	1813
Cordova	0	243	0	-454	454	0	243
Sumner	-2092	2091	0	8158	-8157	0	0
U-Clar	-1325	1324	0	4504	-4505	0	-1
M-Clar	0	0	0	0	0	0	0
L-Clar	4250	12208	0	5406	5408	0	27272
Revilla	6639	11196	0	6948	-19340	0	5443
Union	0	0	0	0	0	0	0
Tree	16	539	0	7113	-7112	0	556
Term101	0	0	0	0	0	0	0
Term103	0	0	0	0	673	0	673
Dist105	32	81	18	49	74	0	255
Term108	0	0	0	0	0	0	0
Total Catch	29373	18086	18	49742	-49439	0	47780
Escapement	110803	26759	0	-5562	-68193	0	63807
Total Run	140176	44845	18	44180	-117632	0	111587
Expl Rate	-1.4	-1.6	0.0	19.1	1.3	0.0	-0.3

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.8 Sockeye catch by stock 1989. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	727	421	0	994	-199	-1943	0
1Troll	-2508	481	0	216	-129	1943	2
3A	-8440	-809	0	618	-540	0	-9170
3B	-11434	14641	0	2084	-10894	0	-5605
3C	-6847	17632	0	0	0	0	10786
3D	0	3436	0	0	0	0	3436
3E	0	1931	0	0	0	0	1931
4W	7936	-10302	0	0	-2522	0	-4887
4X	-204	-300	0	0	-1099	0	-1602
4Y	-1503	0	0	0	0	0	-1503
4Z	7992	0	0	0	0	0	7992
Area 5	-2006	2403	0	0	-401	0	-4
Noyes	-7936	16937	0	-3678	2420	0	7744
Dall	6886	-2473	0	112	-4510	0	15
Cordova	-69	70	0	-517	518	0	1
Sumner	-3949	4067	61	4100	-4093	0	187
U-Clar	-4000	4111	91	5022	-4792	0	432
M-Clar	-344	345	0	-804	805	0	1
L-Clar	18325	18834	0	6512	4619	0	48290
Revilla	19118	36183	0	12945	-65267	0	2980
Union	0	0	0	0	6947	0	6947
Tree	-40489	40525	0	6804	-6803	0	38
Term101	0	0	0	5236	0	0	5236
Term103	0	0	0	0	12995	0	12995
Dist105	0	0	0	0	0	0	0
Term108	0	0	-1650	0	0	0	-1650
Total Catch	-28745	148134	-1499	39641	-72944	0	84586
Escapement	101773	20314	0	-6302	-36775	0	79010
Total Run	73028	168448	-1499	33339	-109719	0	163596
Expl Rate	-2.5	6.1	-1.3	11.6	-3.6	0.0	0.0

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.9 Sockeye catch by stock 1990. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	4944	-222	0	1282	-140	233	6098
1Troll	240	455	0	-775	327	-233	14
3A	-145	-430	0	1242	-141	0	526
3B	-3488	1857	0	4402	-2519	0	252
3C	-1498	1307	0	0	0	0	-191
3D	0	195	0	0	0	0	195
3E	0	36	0	0	0	0	36
4W	13131	-5544	0	0	-1004	0	6582
4X	1073	-1450	0	0	-292	0	-669
4Y	-9198	0	0	0	0	0	-9198
4Z	9353	0	0	0	0	0	9353
Area 5	-1672	2542	0	0	-243	0	627
Noyes	-6339	0	0	-12902	8914	0	-10327
Dall	0	0	0	-2451	2452	0	1
Cordova	-49	49	0	-642	643	0	0
Sumner	36	376	199	10955	-10890	0	677
U-Clar	126	838	443	6502	-6493	0	1417
M-Clar	-131	130	0	-3057	3057	0	0
L-Clar	9606	19443	0	14176	10557	0	53782
Revilla	7334	8231	0	9103	-18532	0	6136
Union	0	0	0	0	1299	0	1299
Tree	111	8	0	1664	-1642	0	140
Term101	0	0	0	0	0	0	0
Term103	0	0	0	0	10340	0	10340
Dist105	7	1	7	4	48	0	66
Term108	0	0	533	0	0	0	533
Total Catch	23442	27822	1181	29501	-4259	0	77688
Escapement	71864	26770	0	-7084	-119874	0	-28324
Total Run	95306	54592	1181	22417	-124133	0	49364
Expl Rate	-1.1	-0.6	1.3	6.8	9.7	0.0	1.3

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.10 Sockeye catch by stock 1991. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	4478	-2881	0	899	-357	-12	2128
1Troll	445	-327	0	-286	155	12	-1
3A	16861	-11074	0	5320	-1329	0	9778
3B	33942	-27440	0	5522	-9198	0	2825
3C	4821	-15218	0	0	0	0	-10397
3D	0	1109	0	0	0	0	1109
3E	0	933	0	0	0	0	933
4W	20868	-18509	0	0	-2653	0	-295
4X	3546	-2584	0	0	-966	0	-4
4Y	-7264	0	0	0	0	0	-7264
4Z	10036	0	0	0	0	0	10036
Area 5	-4881	5671	0	0	-638	0	152
Noyes	-3155	-619	0	-4627	71	0	-8330
Dall	828	2	0	11772	-11770	0	832
Cordova	-40	47	0	599	-599	0	7
Sumner	339	2069	325	10203	-10191	0	2746
U-Clar	259	1141	385	7882	-7876	0	1790
M-Clar	-22	22	0	-186	185	0	-1
L-Clar	7623	12571	0	27796	-4436	0	43554
Revilla	6975	10546	0	15585	-30242	0	2864
Union	0	0	0	0	2565	0	2565
Tree	27	-399	0	6789	-6156	0	261
Term101	0	0	0	-1751	0	0	-1751
Term103	0	0	0	0	13796	0	13796
Dist105	118	97	356	416	910	0	1898
Term108	0	0	-6374	0	0	0	-6374
Total Catch	95802	-44846	-5306	85935	-68729	0	62855
Escapement	159346	36157	0	-21571	-381418	0	-207486
Total Run	255148	-8689	-5306	64364	-450147	0	-144631
Expl Rate	-1.6	-4.1	-2.5	15.1	18.4	0.0	2.5

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.11 Sockeye catch by stock 1992. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	4200	-1206	0	972	-289	-3639	37
1Troll	351	-418	0	-750	93	819	95
3A	-2443	-970	0	4908	-848	0	647
3B	1884	972	0	8613	-5748	0	5720
3C	530	632	0	0	0	0	1162
3D	0	-994	0	0	0	0	-994
3E	0	-4236	0	0	0	0	-4236
4W	44617	-29895	0	0	-6066	0	8657
4X	8319	-4564	0	0	-1546	0	2210
4Y	7908	0	0	0	0	0	7908
4Z	-3826	0	0	0	0	0	-3826
Area 5	-6278	6993	0	0	-719	0	-4
Noyes	1164	160	0	1698	-2029	0	994
Dall	1972	305	0	-7258	7258	0	2277
Cordova	45	-45	0	-1659	1659	0	0
Sumner	1168	9	2510	11036	-11011	0	3712
U-Clar	211	0	1653	4158	-4148	0	1874
M-Clar	60	0	0	-1847	1845	0	58
L-Clar	3311	15417	0	12051	26386	0	57165
Revilla	7276	10141	0	22014	-33626	0	5805
Union	0	0	0	0	6506	0	6506
Tree	167	26	0	23316	-23257	0	252
Term101	0	0	0	-1	0	0	-1
Term103	0	0	0	0	1423	0	1423
Dist105	1	1	4	2	14	0	23
Term108	0	0	-117	0	0	0	-117
Total Catch	70636	-7672	4050	77254	-44106	-2820	97341
Escapement	33967	44331	0	-46039	-282028	0	-249769
Total Run	104603	36659	4050	31215	-326134	-2820	-149609
Expl Rate	0.1	-1.6	1.1	19.7	9.7	0.0	2.5

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.12 Sockeye catch by stock 1993. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	11321	-3682	0	5764	-204	-13961	-763
1Troll	18986	4976	0	1475	966	10406	36809
3A	1172	-24589	0	7687	-427	0	-16156
3B	89809	67638	0	22966	-3699	0	176713
3C	30576	30980	0	0	0	0	61557
3D	0	-48341	0	0	0	0	-48341
3E	0	-173553	0	0	0	0	-173553
4W	75078	-73683	0	0	-2461	0	-1066
4X	37559	-12702	0	0	-992	0	23864
4Y	2080	0	0	0	0	0	2080
4Z	-14279	0	0	0	0	0	-14279
Area 5	-4446	5421	0	0	-354	0	622
Noyes	-31049	-575	0	-20135	12498	0	-39261
Dall	-1818	513	0	4321	-2808	0	208
Cordova	156	-93	0	-6952	6891	0	2
Sumner	229	-1	5543	228	-164	0	5835
U-Clar	0	1	4159	2165	-2108	0	4217
M-Clar	0	0	0	-2032	2068	0	36
L-Clar	-2732	-17739	0	37694	63565	0	80789
Revilla	13809	12548	0	27520	28756	0	82632
Union	0	0	0	0	43597	0	43597
Tree	57	23	0	7443	-7263	0	260
Term101	0	0	0	50926	0	0	50926
Term103	0	0	0	0	41425	0	41425
Dist105	4364	1494	5900	2639	19532	0	33928
Term108	0	0	6563	0	0	0	6563
Total Catch	230871	-231365	22165	141710	198816	-3555	358641
Escapement	147831	-10329	0	-163121	-158404	0	-184023
Total Run	378702	-241694	22165	-21411	40412	-3555	178173
Expl Rate	0.4	-2.3	4.3	30.4	17.1	0.0	3.0

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.13 Sockeye catch by stock 1994. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	18395	2405	0	999	-45	-21778	-25
1Troll	19698	3304	0	457	112	8083	31655
3A	-1790	-588	0	922	-191	0	-1647
3B	10118	-10945	0	5088	-1847	0	2413
3C	2209	-3913	0	0	0	0	-1704
3D	0	1141	0	0	0	0	1141
3E	0	825	0	0	0	0	825
4W	12306	-10680	0	0	-1709	0	-83
4X	1940	-206	0	0	-363	0	1370
4Y	2679	0	0	0	0	0	2679
4Z	-3782	0	0	0	0	0	-3782
Area 5	-5182	5583	0	0	-400	0	1
Noyes	2795	-616	0	-6082	3814	0	-88
Dall	204	-339	0	6605	-6470	0	0
Cordova	429	-389	0	-5243	5244	0	40
Sumner	1467	121	937	6029	-5980	0	2573
U-Clar	1517	210	510	1441	-1389	0	2288
M-Clar	551	29	0	-885	881	0	577
L-Clar	24597	8419	0	7345	515	0	40876
Revilla	6032	5125	0	4606	-10779	0	4985
Union	0	0	0	0	8914	0	8914
Tree	328	1429	0	4415	-5716	0	456
Term101	0	0	0	-115	0	0	-115
Term103	0	0	0	0	5323	0	5323
Dist105	13	6	50	19	128	0	216
Term108	0	0	-1120	0	0	0	-1120
Total Catch	94522	922	376	25601	-9960	-13695	97768
Escapement	128975	-278	0	-11969	-66155	0	50573
Total Run	223497	644	376	13632	-76115	-13695	162035
Expl Rate	-0.8	0.1	0.1	7.7	3.9	0.0	0.6

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix E.14 Sockeye catch by stock 1995. Differences between the revised analysis and results presented in Gazey and English 2000.

	Difference*						
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**
Langara	11971	-9848	0	851	-652	-1451	871
1Troll	43093	4394	0	547	529	1451	50014
3A	29285	-14380	0	4566	-1264	0	18207
3B	19037	-20552	0	5230	-5609	0	-1894
3C	4583	-7738	0	0	0	0	-3155
3D	0	-1027	0	0	0	0	-1027
3E	0	-3332	0	0	0	0	-3332
4W	30828	-30588	0	0	-2195	0	-1955
4X	9890	-3030	0	0	-929	0	5930
4Y	10996	0	0	0	0	0	10996
4Z	12103	0	0	0	0	0	12103
Area 5	-4632	4179	0	0	-412	0	-864
Noyes	3720	-1116	0	-11085	9346	0	864
Dall	8945	-375	0	-15041	14648	0	8177
Cordova	46	-45	0	-1595	1595	0	0
Sumner	1214	52	2854	-3130	3325	0	4316
U-Clar	1487	0	2858	-2061	2063	0	4348
M-Clar	887	-1651	0	-9132	9919	0	22
L-Clar	29481	26762	0	915	26896	0	84054
Revilla	22705	12486	0	6628	-27530	0	14289
Union	0	0	0	0	7969	0	7969
Tree	1471	-138	0	2751	-2595	0	1489
Term101	0	0	0	-7432	0	0	-7432
Term103	0	0	0	0	7447	0	7447
Dist105	8817	1742	3306	1468	9104	0	24436
Term108	0	0	623	0	0	0	623
Total Catch	245925	-44205	9641	-26519	51655	0	236497
Escapement	172942	-8547	0	-7577	71676	0	228494
Total Run	418867	-52752	9641	-34096	123331	0	464991
Expl Rate	-0.1	-0.4	2.3	-2.1	-2.9	0.0	-0.7

* Differences are the revised analysis minus the comparable estimate from Gazey and English 2000.

Appendix F.1 1996 and 1997 Sockeye catch by stock.

	1996 Reconstruction (Available Scale Data)							1997 Reconstruction (Available Scale Data)					
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**
Langara	0	0	0	0	0	0	0	184932	31380	0	15852	533	138588
1Troll	17197	701	0	730	48	0	18677	78137	11721	0	2383	3886	22099
3A	458663	17866	0	16341	251	0	493120	150347	12869	0	3204	122	0
3B	200483	87507	0	16575	1064	0	305630	199086	123544	0	13562	1133	0
3C	33277	19223	0	0	0	0	52500	26026	29718	0	0	0	0
3D	0	41365	0	0	0	0	41365	0	13493	0	0	0	0
3E	0	135644	0	0	0	0	135644	0	9558	0	0	0	0
4W	814767	47563	0	0	1078	0	863407	247331	30333	0	0	316	0
4X	601278	36551	0	0	1134	0	638964	139762	15878	0	0	262	0
4Y	801309	0	0	0	0	0	801309	327713	0	0	0	0	0
4Z	1115910	0	0	0	0	0	1115910	363671	0	0	0	0	0
Area 5	194535	55418	0	0	1439	0	251392	11865	8189	0	0	128	0
Noyes	233881	90794	0	35159	70091	19863	449789	321603	164249	0	31651	110047	139778
Dall	209826	77226	0	38414	69335	15828	410629	206767	129842	0	16415	65862	58463
Cordova	0	130	0	3158	14361	0	17649	110	60	0	88	557	0
Sumner	32077	23384	52990	41682	73014	0	223148	19256	14366	12460	12653	59629	0
U-Clar	17350	10653	9671	23200	28490	0	89363	22745	4146	3927	10380	47002	0
M-Clar	2126	225	0	1617	15374	0	19342	1702	886	0	1897	11416	0
L-Clar	43550	19276	0	66838	75376	0	205040	16250	10694	0	30207	68599	0
Revilla	9898	5502	0	22699	28361	0	66460	2545	1566	0	5918	9687	0
Union	0	0	0	0	4661	0	4661	0	0	0	0	26336	0
Tree	49031	133218	0	19295	10450	0	211994	40265	94427	0	16755	15237	0
Term101	0	0	0	249635	0	0	249635	0	0	0	40420	0	0
Term103	0	0	0	0	6538	0	6538	0	0	0	0	29158	0
Dist105	50	21	45	39	118	0	273	5070	598	3258	1573	14358	0
Term108	0	0	154038	0	0	0	154038	0	0	92995	0	0	0
Total Catch	4835209	802268	216744	535382	401184	35691	6826478	2365181	707515	112640	202957	464269	358928
Escapement	2651202	252129	184400	61933	575238	0	3724902	1394273	287246	125657	68462	459585	0
Total Run	7486411	1054397	401144	597315	976422	35691	10515690	3759454	994761	238297	271419	923854	358928
Expl Rate	64.59	76.09	54.03	89.63	41.09	0	64.58	62.91	71.12	47.27	74.78	50.25	0

Appendix F.2 1998 and 1999 Sockeye catch by stock.

	1998 Reconstruction (Available Scale Data)							1999 Reconstruction (Available Scale Data)					
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**
Langara	0	0	0	0	0	11	11	0	0	0	0	0	0
1Troll	0	0	0	0	0	0	0	0	0	0	0	0	0
3A	1647	567	0	94	5	0	2314	0	0	0	0	0	0
3B	15246	34568	0	1221	189	0	51224	10228	35853	0	2790	101	0
3C	6769	25136	0	0	0	0	31905	9244	73516	0	0	0	0
3D	0	31379	0	0	0	0	31379	0	113567	0	0	0	0
3E	0	37740	0	0	0	0	37740	0	166388	0	0	0	0
4W	19512	6401	0	0	58	0	25971	0	0	0	0	0	0
4X	16091	3611	0	0	41	0	19744	0	0	0	0	0	0
4Y	18372	0	0	0	0	0	18372	0	0	0	0	0	0
4Z	30037	0	0	0	0	0	30037	5507	0	0	0	0	0
Area 5	1371	1997	0	0	35	0	3403	0	0	0	0	0	0
Noyes	63789	77376	0	12448	28569	182654	364836	24621	22001	0	18651	21747	15626
Dall	32181	40006	0	7294	14329	28594	122404	16760	13706	0	12990	14782	3977
Cordova	388	170	0	878	2242	0	3678	0	0	0	47	52	0
Sumner	15731	11508	1995	16287	33338	0	78859	640	7091	13163	20862	30970	0
U-Clar	8486	5414	467	11224	16996	0	42587	412	2939	5651	12391	13398	0
M-Clar	968	703	0	1544	4608	0	7822	667	475	0	4066	5312	0
L-Clar	12888	19974	0	17822	17304	0	67988	4799	17394	0	31181	20722	0
Revilla	3156	6011	0	6072	4582	0	19821	1679	3900	0	14100	8954	0
Union	0	0	0	0	6512	0	6512	0	0	0	0	14844	0
Tree	40172	104000	0	11128	4755	0	160055	15054	129794	0	12835	2186	0
Term101	0	0	0	20719	0	0	20719	0	0	0	35224	0	0
Term103	0	0	0	0	13777	0	13777	0	0	0	0	7857	0
Dist105	379	329	630	558	1433	0	3329	30	158	106	650	853	0
Term108	0	0	22009	0	0	0	22009	0	0	36070	0	0	0
Total Catch	287183	406890	25100	107290	148773	211259	1186495	89643	586783	54991	165786	141777	19603
Escapement	715689	304893	90459	57501	157807	0	1326349	838601	256024	65879	89608	160201	0
Total Run	1002872	711783	115559	164791	306580	211259	2301585	928244	842807	120870	255394	301978	19603
Expl Rate	28.64	57.16	21.72	65.11	48.53	0	42.37	9.66	69.62	45.5	64.91	46.95	0

Appendix F.3 2000 and 2001 Sockeye catch by stock.

	2000 Reconstruction (Available Scale Data)							2001 Reconstruction (Available Scale Data)					
Fishery	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**	**Total**	**Skeena**	**Nass**	**Stikine**	**US McD**	**US Other**	**Fraser**
Langara	0	0	0	0	0	0	0	0	0	0	0	0	0
1Troll	902	56	0	33	0	0	992	0	0	0	0	0	0
3A	0	0	0	0	0	0	0	0	0	0	0	0	0
3B	56817	38087	0	2095	46	0	97045	44222	23783	0	1763	177	0
3C	33421	38469	0	0	0	0	71890	26854	20705	0	0	0	0
3D	0	38750	0	0	0	0	38750	0	25425	0	0	0	0
3E	0	97619	0	0	0	0	97619	0	29266	0	0	0	0
4W	106945	5380	0	0	22	0	112347	65132	3582	0	0	36	0
4X	542491	20661	0	0	134	0	563286	627155	26686	0	0	305	0
4Y	758124	0	0	0	0	0	758124	339230	0	0	0	0	0
4Z	559567	0	0	0	0	0	559567	506559	0	0	0	0	0
Area 5	0	0	0	0	0	0	0	11035	2432	0	0	51	0
Noyes	57227	8451	0	19766	15592	7925	108961	271903	53788	0	10562	53597	0
Dall	61977	8877	0	20570	17247	9407	118078	100495	20314	0	3956	22019	0
Cordova	263	1013	0	3421	4515	0	9212	273	83	0	107	643	0
Sumner	8529	5794	3092	19570	20792	0	57777	7674	15454	13704	11943	50424	0
U-Clar	6157	2969	1102	12834	11369	0	34432	5722	9361	2128	13715	41536	0
M-Clar	491	213	0	1351	2204	0	4258	4813	1610	0	1530	5553	0
L-Clar	60623	9876	0	26715	12595	0	109810	53305	40228	0	26976	64595	0
Revilla	14370	2980	0	11117	4856	0	33322	5733	5768	0	3592	9420	0
Union	0	0	0	0	7024	0	7024	0	0	0	0	56888	0
Tree	31592	46305	0	14590	2132	0	94619	13929	55096	0	7937	2977	0
Term101	0	0	0	35811	0	0	35811	0	0	0	29797	0	0
Term103	0	0	0	0	7412	0	7412	0	0	0	0	25854	0
Dist105	30	14	36	36	75	0	191	47	50	193	144	1424	0
Term108	0	0	15826	0	0	0	15826	0	0	594	0	0	0
Total Catch	2299525	325514	20057	167909	106015	17332	2936351	2084081	333633	16618	112022	335497	0
Escapement	2392719	300469	56354	90624	137389	0	2977555	2300594	246985	50000	42767	318000	0
Total Run	4692244	625983	76411	258533	243404	17332	5896574	4384675	580618	66618	154789	653497	0
Expl Rate	49.01	52	26.25	64.95	43.56	0	49.5	47.53	57.46	24.95	72.37	51.34	0